

a proposal for citizen review

improvement
plan for
transportation

THE COMPREHENSIVE PLAN OF SAN FRANCISCO

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ARED BY THE SAN FRANCISCO DEPARTMENT OF CITY PLANNING

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THE COMPREHENSIVE
PLAN OF SAN FRANCISCO



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"The master plan shall show the general location, character, and extent of existing and proposed street railway, bus, railroad, air, water and other transportation routes and terminals, public ways ... It shall include proposals for the acquisition, extension, widening, narrowing, removal, relocation, vacation, abandonment, sale, or change in the use of any of the foregoing public ways, routes ... or structures."

Charter of the City and County
of San Francisco, Section 116



DEPARTMENT OF CITY PLANNING

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TO THE HONORABLE MEMBERS OF THE CITY PLANNING COMMISSION:

I am pleased to submit the "Improvement Plan for Transportation, A Proposal for Citizen Review", the third major report recommending revisions to the Comprehensive Plan of San Francisco. The report was prepared by the staff of the Department of City Planning in consultation with the Department of Public Works and the Municipal Railway. "Transportation: Conditions, Trends and Issues", a report published by the Planning staff in January, provided much of the necessary background for the proposed Improvement Plan.

The importance of improving transportation planning and involving citizens in the process is becoming more evident in all jurisdictions. The pattern of circulation -- how people move about the city -- has always been a vital issue in urban life. And as they have in the past, we can expect transportation decisions to have an enormous effect on San Francisco. Consequently, the City's Master Plan, in which transportation is an important element, is intended to assist citizens and officials in evaluating transportation improvements for their social and economic potential and for their impact on the physical environment.

The Improvement Plan creates an opportunity for widespread citizen review of recommended objectives and policies involving the City's transportation facilities. After public discussion, the Plan for Transportation, revised in accordance with ideas and criticisms from citizens and City officials, should be considered for adoption by the City Planning Commission as part of the Comprehensive Plan of San Francisco.

Sincerely,

A handwritten signature in dark ink, appearing to read "Allan B. Jacobs".

Allan B. Jacobs
Director of Planning

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INTRODUCTION

This report is the third in a series of proposed revisions of the Comprehensive Plan presented to the citizens of San Francisco for their discussion and review. Like housing and urban design, transportation has an intimate effect upon the lives of the city's residents. San Francisco has been in the forefront in expressions of public concern over transportation issues and in attempts to arrive at new solutions. Numerous neighborhood associations and citywide groups have been actively involved in molding transportation policy in San Francisco and the Bay Area. In recognition of citizens' concerns with transportation, the Department of City Planning has prepared this report for citizen review. Many of the ideas, policies and proposals derive directly from the activities and proposals of interested citizens.

PURPOSE

The purpose of this report is to recommend City policies and programs for improving transportation in San Francisco and for achieving a viable balance between transportation needs and broad social, economic and environmental goals. The report contains recommended citywide objectives and policies for transportation; suggestions for a variety of actions to carry out certain policies; and identification of targets for completion of specific improvements.

The recommendations made in this report are based upon information and analysis contained in the Department's report, Transportation: Conditions, Problems and Issues, which is summarized in following pages. That report attempted a comprehensive analysis of San Francisco's transportation needs and problems, both present and future. Subsequent to that report the Department has consulted extensively with the Department of Public Works and the Municipal Railway in arriving at the objectives, policies and proposals presented here. They have contributed greatly to making this statement on transportation policy more comprehensive and explicit. The policies and recommendations are meant to, and can, serve to initiate public review and discussion. They are preliminary in nature and can incorporate any required modifications and additions suggested during the review period.

THE TRANSPORTATION ELEMENT OF THE COMPREHENSIVE PLAN

Widespread, constructive review of this Improvement Plan for Transportation by citizens and organizations is essential because one section of this report is recommended for adoption into the San Francisco Comprehensive Plan.

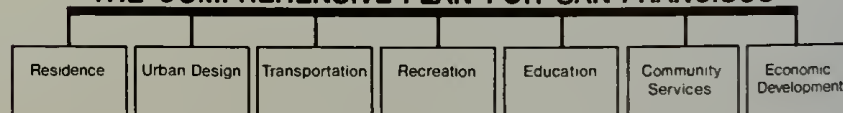
The report is divided into three major sections. First is a brief analysis of transportation needs and problems in San Francisco, a summary of the earlier report on transportation. The second section presents a set of transportation objectives and policies and plan maps, which is intended for adoption, after review and revision, as the Transportation Element of the Comprehensive Plan. The third section consists of recommended improvement programs for carrying out transportation objectives and policies. While some of the specific recommendations are long-range in nature and others are intended to be carried out in a shorter period, all should be reviewed

and updated continuously. The objectives and policies, on the other hand, are intended to be more general and more durable in nature.

RELATIONSHIP TO COMPREHENSIVE PLANNING

The Department of City Planning is in the midst of a new planning and development process which involves revising the Comprehensive Plan and reorganizing comprehensive planning. This process is divided into five components: objectives and policies, improvement plans, development strategy, area planning and development programming. The first phase, policy development, establishes longer-range objectives and policies to guide the city in terms of eleven planning elements: residence, recreation, urban design, education, social services, health care, public safety, commerce, industry, employment, and transportation. Improvement plans translate these longer-range objectives and policies into shorter-term programs and measurable targets, to the extent possible. Development strategy assigns priorities to citywide actions and allocates public resources as necessary to carry out program recommendations. Area planning enables the interests and needs of community groups to be incorporated into public programs for their neighborhoods. Development programming is the scheduling and guiding of specific, detailed projects, both public and private.

THE COMPREHENSIVE PLAN FOR SAN FRANCISCO



This preliminary Improvement Plan, as noted earlier, is the third major product of the new planning and development process, following the Improvement Plan for Residence and the Urban Design Plan. It represents the first two components of the process: long-range objectives and policies have been formulated and, using these as guidelines, short- and long-term programs, actions and targets have been identified to make progress toward the objectives explicit and measurable. San Franciscans, their elected officials, and public agencies should review and revise this Improvement Plan and then use it to guide transportation development and improvement in San Francisco.

TRANSPORTATION: CONDITIONS, PROBLEMS, ISSUES

Transportation is a dominant feature in the physical, social and economic life of a city. The modes of transportation used, as well as the location of routes and design of the system, influence the nature of urban culture and the physical organization of the city. For this reason the interrelationships between a transportation system and other elements of urban structure must be carefully considered in transportation planning.

Historically, the nature of transportation technology and organization has had a tremendous influence on patterns of urban development. Today, changes in the transportation system are often more disruptive to existing patterns than productive of wholly new development. Since only a small fraction of all the public services and facilities required by residents can be provided within walking distance, the transportation system is an essential element in providing access to these services. The design, type and cost of transportation influence the quality of access provided.

An expanded transportation network brings wider opportunities. Most residents may now choose their jobs or homes without changing the other, take advantage of a variety of recreational opportunities, and have many acquaintances throughout a large region. For the disadvantaged members of society, the adequacy of the transportation remains a key element in providing access to improved educational, social and work opportunities.

An efficient transportation system for goods and passenger movement is an essential ingredient in a healthy economic environment. Congestion can mean a loss of valuable time and a waste of economic resources, although it may also be the sign of a healthy and prosperous economy. The continued vitality of downtown San Francisco as a center of specialized regional economic activity depends on an efficient transportation system.

Transportation systems can either encourage or destroy patterns of community association and neighborhood identity, and thus contribute to or hurt social and environmental stability. As the strong sense of social community has declined because of increased social mobility, the physical identity of neighborhoods may have become a new source of stability and cohesion.

Changes in the transportation system which destroy this integrity can have serious effects.

Different modes of transportation have differing qualities with respect to safety, convenience, and comfort in traveling, and even health. Heavy traffic and high speed travel increase accident hazards. Convenience varies according to the amount of congestion, frequency of service, and directness of travel. Overcrowding in public transportation and parking problems for drivers are sources of inconvenience and discomfort.

Various transportation modes and networks have different effects on the quality of the environment. Gasoline-powered automobiles and buses pollute the air. Noise is a special problem for San Francisco residents because of the rugged topography requiring frequent acceleration and deceleration. Elevated structures block views, eliminate light at street levels, and contribute to imbalance in the sense of scale of the physical structure of the city. This is especially a problem in San Francisco where small-scale organization and views are important ingredients of the quality of the environment.

PLANNING FOR TRANSPORTATION IN SAN FRANCISCO

The specific requirements for an adequate transportation system and the possibilities for providing it are determined by the social, physical and economic factors peculiar to each city and its region. Past planning and resident attitudes are also important factors.

Since San Francisco and adjacent counties are already intensively developed, few opportunities exist for drastic changes in transportation networks or facilities. The existing transportation system must, therefore, be seen as a basis upon which to build additional facilities and provide new services for present and future needs.

Past Planning, Resident Attitudes and Current Policy

Community debate over the past twenty years in San Francisco has focused primarily on the issue of freeways. At present City policy is that no new freeways will be built through

residential areas, except possibly via tunneling. This policy conditions future planning. At the same time, the City is committed to BART and other forms of regional transit for commuter travel from the suburbs. Present controversy centers on the appropriate thoroughfare system for the city and residents have expressed opposition to any proposal which might have a deleterious effect on the quality of their neighborhoods.

The Regional Setting: Present and Future

San Francisco is part of a growing metropolitan area. The role and location of the city provide a setting for local decisions. Access to the city is constrained by its location on the tip of a peninsula. The Bay acts as a barrier to easy access from the North and East Bay.

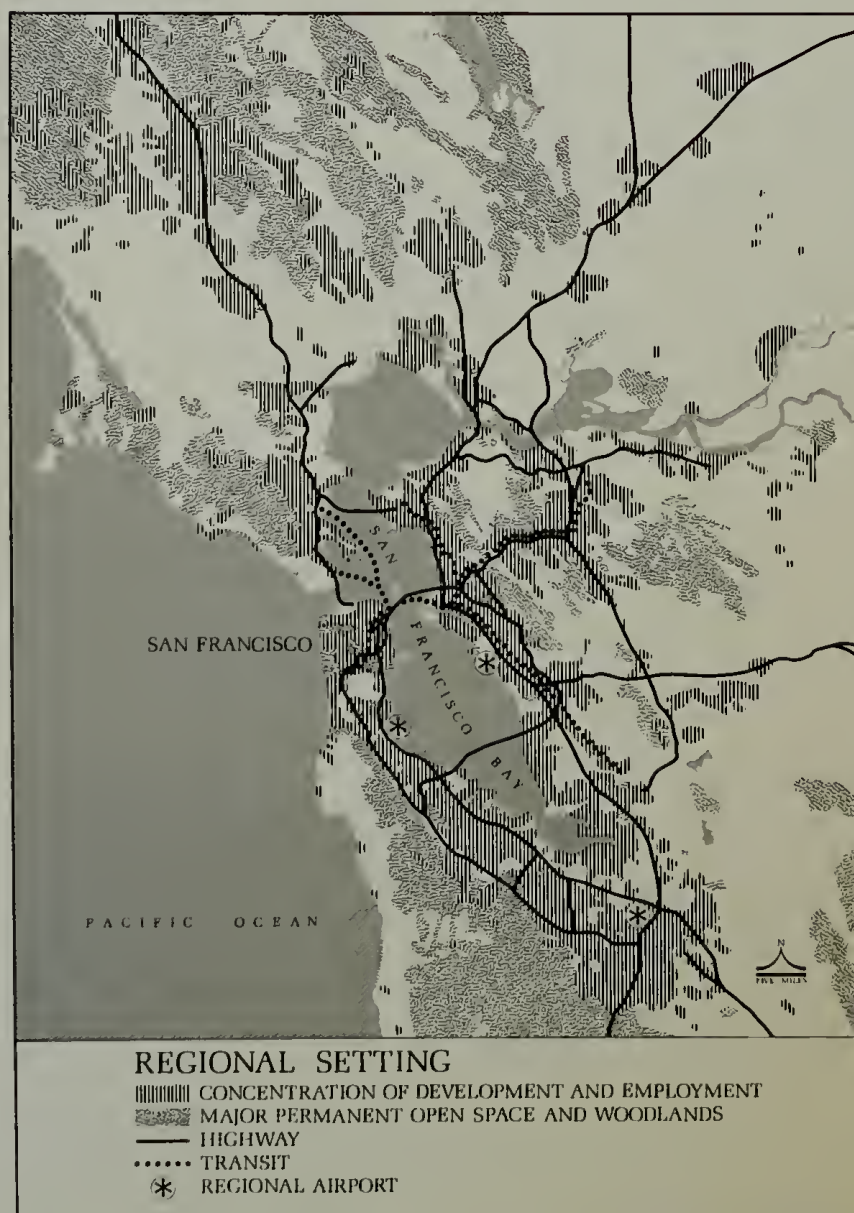
The nine-county Bay Area is expected to increase in population by over three million persons by 1990 with employment expected to increase at an even more rapid rate. The region is functioning increasingly as an interrelated economic entity with more goods and services consumed within the area. As a result a greater proportion of workers are employed outside their counties of residence than before. This trend is significant for San Francisco because almost half of all Bay Area residents working outside their own counties work in the city. Decentralization of job opportunities, especially in manufacturing, is creating problems for semi-skilled and low-skilled residents of central cities.

There are about seventeen agencies in the Bay Area that build or operate various types of transportation. In addition, many ad hoc entities are established on occasion to perform special studies. The number of agencies involved in planning and operation makes coordination and comprehensive planning difficult. The essential problem is to find a means to combine overall regional planning with local control over transportation matters seriously affecting each locality.

Local Factors for Transportation Planning

The strongest defining features of San Francisco are the hills and water. The hills constrain access among parts of the city, while providing ideal sites for homes. The topography also creates separate identities for many neighborhoods where small-scale development, low heights and continuity of architectural character are predominant.

The city is predominantly residential in land use, with large amounts of housing even within the commercial and industrial districts. Neighborhood-supporting uses are frequently within walking distance and major employment and commerce are located in relatively compact areas. Almost all industrial development is located on the eastern lowlands along the Bay. Downtown contains the bulk of non-industrial employment. Residential densities are highest



in the northeast section of the city and lowest southwest of Twin Peaks. Much of the housing stock consists of small units in large apartment buildings which are not preferred by families. This fact, in combination with growing employment, is encouraging an increase in nonresident commuting to San Francisco. Only a few opportunities exist in the city for large new residential developments.

Population has declined since 1960 and is expected to remain stable. Increasing numbers, however, will be in the younger and older age groups. Growing diversity in the composition of the population by age, income and living characteristics will increase the varieties of transportation demand.

The economic structure of the city is also changing, away from manufacturing to services -- finance, government, real estate, and business services. Employment has been growing at an average annual rate of over 5,000 new jobs. Because the resident labor force has declined and commuting out to work has increased, commuting into the city has grown more rapidly. It increased 50 percent between 1960 and 1965. Over the next twenty years commuting into the city is expected to increase by almost 100 percent, or by 170,000 persons. At the same time, the growing mismatch between population and job characteristics will increase demand for resident access to blue-collar jobs outside the city.

PRESENT AND FUTURE TRAVEL PATTERNS

Downtown is the most critical transportation area in San Francisco. It contains not only substantial employment but also specialized shopping and entertainment facilities, government offices, hotels and tourist attractions. Problems also exist outside of downtown, however, due to the large number of nonresident trips made to other parts of the city, the concentration of employment in certain areas, and the increase in travel for shopping, recreation, and personal business by residents in all parts of the city.

Downtown-Oriented Travel

Over 350,000 people come to downtown from other parts of the city and metropolitan area each weekday. Sixty-two percent of the trips are to work and most of these are made during the morning and afternoon peak periods. Since almost half of all persons attracted to downtown leave during the afternoon peak period, this

PROJECTED BAY AREA POPULATION

County	Population		Increase 1965-1990	
	1965 (000's)	1990 (a) (000's)	Amount (000's)	Percent
San Francisco	754.8	826.6	71.8	9.5
Alameda	1,092.2	1,680.6	588.4	53.9
Contra Costa	530.4	1,080.6	549.6	103.6
Marin	181.8	408.7	226.9	124.8
Napa	61.8	139.8	78.0	126.2
San Mateo	559.5	872.5	313.0	59.9
Santa Clara	902.1	1,784.7	886.6	97.8
Solano	149.4	315.8	166.4	111.4
Sonoma	171.3	368.4	197.1	115.1
TOTAL	4,403.3	7,477.1	3,073.8	69.8

(a) Middle range forecast.

Source: Bay Area Transportation Study Commission, Bay Area Transportation Report, 1969.

PROJECTED BAY AREA EMPLOYMENT

County	Employment		Increase 1965-1990	
	1965 (000's)	1990 (a) (000's)	Amount (000's)	Percent
San Francisco	476.4	714.1	237.7	49.9
Alameda	396.7	724.5	327.8	82.6
Contra Costa	127.6	271.2	143.6	112.5
Marin	44.9	100.0	55.1	122.7
Napa	23.9	56.6	32.7	136.8
San Mateo	173.3	362.8	189.5	109.3
Santa Clara	314.8	665.6	350.8	111.4
Solano	49.4	109.2	59.8	121.1
Sonoma	57.0	110.5	53.5	93.9
TOTAL	1,664.0	3,114.5	1,450.5	87.2

(a) Middle range forecast.

Source: Bay Area Transportation Study Commission, Bay Area Transportation Report, 1969.

SAN FRANCISCO RESIDENT AND NONRESIDENT EMPLOYEES

	1960(a)	Net Change	1965(b)
Working Population of San Francisco	336,600	-3,400	333,200
Residents Commuting Out	23,200	+19,250	42,450
Percent	7%	+6%	13%
Working in the City	313,400	-54,750	290,750
Percent	93%	-6%	87%
Nonresidents Commuting In	122,000	+63,650	185,650
Total Employees in City	435,400	+41,000	476,400
Percent residents	72%	-11%	61%
Percent nonresidents	28%	+11%	39%

Sources: (a) U.S. Bureau of the Census, Census of Population, 1960;
(b) Bay Area Transportation Study Commission, Bay Area Transportation Report, 1969; "Memorandum", July 1, 1968.

DOWNTOWN AND TOTAL CITY EMPLOYMENT

	EMPLOYMENT			NET CHANGE		
	1970	1980	1990	1970-80	1980-90	1970-90
Downtown	299,800 (a)	332,000 (b)	405,000 (b)	32,200	73,000	105,200
Percent of Total	55%	56%	58%	--	--	--
Outside Downtown	242,200	260,000	309,000	17,800	49,000	66,800
Total City	542,000 (a)	592,000 (c)	714,000 (c)	50,000	122,000	172,000

Sources: (a) Wilbur Smith and Associates, Statistical Abstract, Four County Community Shelter Plan, May, 1970.
(b) Department of City Planning estimate based on Northern California Transit Demonstration Project, Final Report, 1967.
(c) Bay Area Transportation Study Commission, Bay Area Transportation Report, 1969, for 1980 and 1990 totals.

movement causes a serious strain on transportation facilities. Forty-three percent of all trips to work in downtown are made by commuters from surrounding counties. Whereas 44 percent of trips by city residents are for non-work purposes, only 28 percent of nonresident trips to downtown are not for work.

Fifty-nine percent of all trips to downtown are made by automobile and 41 percent by public transit. Transit use by residents is higher than that for nonresidents. During the afternoon peak period 52 percent of all trips outbound from downtown are by public transit. City residents make 58 percent of their trips during this period by transit while nonresidents make slightly more than half of their trips by automobile.

If adequate transportation facilities are made available, downtown employment is expected to grow by 105,000 jobs between 1970 and 1990. Since the city's resident labor force is not expected to grow substantially, the number of nonresidents commuting to downtown will increase by about the same amount as total employment. If the current balance between automobiles and transit remained unchanged, as many as 30,000 additional automobiles would be attempting to enter and leave downtown during the peak periods in 1990. To accommodate that many vehicles would require at least ten additional lanes of freeway entering the city and substantial changes in city streets. BART is expected to provide much of the capacity needed for trips to and from the East Bay. However, serious problems will continue for Peninsula and North Bay commuters.

Trips to downtown for non-work purposes will experience an increase related to growth in leisure time, incomes, and general mobility. However, if the problem of increasing work trips is solved, the additional capacity for access to downtown should be more than sufficient to accommodate the non-work trips.

Non-Downtown Travel

Although downtown represents the single most critical problem in terms of the capacity of present facilities to handle projected travel demand, more total travel occurs in the rest of the city. This travel is generated by both residents and nonresidents seeking to travel to outlying employment and non-work activities.

Fifty-six percent of nonresident weekday trips to the city are to non-downtown destinations. Almost half of these are to employment.

In contrast to travel to downtown, over 90 percent of all non-downtown trips by nonresidents are by automobile, contributing greatly to congestion on the bridges and major routes into the city. Sixty percent of these trips are made by Peninsula residents, who travel primarily to the Mission-Bayshore corridor. Most East Bay and North Bay residents travel to the Marina and Richmond-Western Addition corridors.

Most city residents employed outside of downtown work in the Mission-Bayshore and Richmond-Western Addition corridors; three-fourths of them travel to work by automobile. About 13 percent of resident workers commute out to suburban employment, chiefly in the Peninsula and East Bay; over 90 percent of these trips are by automobile. Commuting out has been increasing rapidly.

About 75 percent of daily trips by residents are not to or from employment. They include travel for shopping, recreation, entertainment, medical attention, banking, and a variety of other purposes. One-third of these trips, not including travel on foot, are made within the immediate areas in which residents live. Automobiles are used for almost all non-work trips outside of downtown, except for school trips. Non-work trips are expected to increase more rapidly than work trips, generating heavier automobile traffic throughout the city if current trends continue.

Vehicular traffic resulting from automobile use for non-downtown travel is found concentrated primarily on streets in the Western Addition, North Beach, and Mission districts, which border downtown. The presence of this traffic adds to congestion caused by downtown-oriented travel and causes serious environmental problems for residential neighborhoods in these areas. Future trends in non-downtown employment and in non-work travel portend an increase in traffic unless transit service is improved.









ISSUES IN TRANSPORTATION

Analysis of existing and projected travel patterns, when seen in the context of the existing transportation system, suggests several transportation problems. When these problems are related to other goals and objectives of the City, several major issues are raised.

Projected growth in commuting to the city requires that a choice be made with respect to the level of growth desired and the way in which



FRAMEWORK FOR TRANSPORTATION

- | | | | |
|--|-------------------------------------|---|---|
|  | C-3 AREA |  | SUBWAY AND STATION |
|  | PROTECTED RESIDENTIAL AREA |  | METROPOLITAN TERMINAL |
|  | MAJOR OPEN SPACE |  | CONCENTRATED EMPLOYMENT CENTER OUTSIDE DOWNTOWN |
|  | AREA OF HIGHEST RESIDENTIAL DENSITY |  | COMMUTER SERVICE TO MARIN |

increased travel will be provided for. Highway links with the three suburban corridors are presently saturated during commuter peak periods. If new commuters are to come to the city, new facilities will have to be provided. Enormous costs in monetary and environmental terms will be incurred, especially if the new trips are to be by automobile. Heavy automobile traffic is already causing serious environmental problems in downtown and in residential areas encircling it. There are too few nonresidential streets to provide for the traffic which already exists.

Increasing non-work travel by residents will also mean increased automobile traffic if current trends continue. This will mean a need for wider streets, and a probable decline in the quality of the residential environment.

The alternative is to improve transit to the extent possible to accommodate the increased demand. Since automobile traffic is unlikely to be reduced from its present levels, the diversion of new travel to transit will be all the more necessary.

The city is committed to a cohesive and compact downtown. In order to carry out this commitment it will be necessary to plan carefully for new terminals, transit routes, street and sidewalk improvements and parking facilities.

The economic vitality of downtown is dependent upon physical proximity among activi-

ties. Therefore, pedestrian and short-distance transit systems should be given priority in servicing intradowntown transportation needs. New rapid transit stops should be located where concentrated growth is desired in relation to the existing core.

The poor, the elderly, youth and the handicapped need better public transportation service at prices they can afford in order to achieve opportunities and mobility more comparable to those of the automobile owner.

As semi-skilled and low-skilled job opportunities in the city decline, it will be increasingly necessary for residents requiring such work to have access to surrounding counties. It must be considered unlikely that substantial numbers of these workers will find adequate housing at reasonable prices in the suburbs. Nor will transportation within the outlying counties be adequate to the task of providing access to jobs. Social and economic mobility will require improved public transit in San Francisco and from San Francisco to other major employment centers.

In summary, the city has a choice between two futures: one in which the city is changed radically to conform to a transportation system that continues to expand in the same manner as in the past, or one in which the transportation system is changed to conform to the kind of city that San Francisco's residents want.

TRANSPORTATION: THE COMPREHENSIVE PLAN

The proposed Plan for Transportation is composed of several sections, each of which deals with an important component of the transportation system. The plan elements are (1) the Thoroughfares Plan, (2) the Mass Transit Plan, (3) the Downtown Transportation Plan, and (4) the Citywide Parking Plan. Each plan element consists of objectives and policies respecting a particular segment of the transportation system and related maps which describe key physical aspects. The Thoroughfares and Mass Transit plans cover the two predominant modes of travel: automobile and public transit. Since these are alternative travel systems which often parallel each other, the two plans must be read together to understand the functions assigned to each and their characteristics. Each must also be understood within the context of the land use and urban design plans for the city. The Downtown Transportation Plan isolates downtown San Francisco for special coverage because of the unique problems associated with travel to, from and within the single most important travel destination in the Bay Area. The Citywide Parking Plan is brief and not comprehensive, requiring expansion at a later date, when more information is available on citywide parking demand and supply.

An overall framework for the separate plan components is provided by the statement of General Objectives and Policies for Transportation, which introduces the Plan. The two general objectives are intended to express desirable ends. They may not always be in harmony. For instance, it may not be possible to satisfy all travel needs in the most convenient manner possible and at the same time maintain a transportation system which preserves and promotes a desirable living and working environment, supports development in the right locations, and is financially reasonable. Each specific proposal or policy in the separate plans might well be seen as a compromise among these overall objectives and policies, based on weighing the advantages and disadvantages and costs of various alternatives.

This element was prepared in cooperation with the Department of Public Works and the Municipal Railway. Not all of the policies recommended are new. Some have existed or been implied in ongoing transportation programs and improvements. After public review and revision has been completed, this section of the

Improvement Plan will be adopted to serve as a framework for long-range planning and daily transportation decisions. It has not been possible at this time to include within the Plan consideration of intercity air and rail transportation. Although these are proper subjects for the Comprehensive Plan, they are not actually forms of intraurban transportation. They will be included at a later date insofar as they relate to facilities required within San Francisco. Since the problems associated with these aspects of transportation are basically regional in nature, they should be dealt with primarily at a regional level.

FUNDAMENTAL ASSUMPTIONS

AUTOMOBILE TRAVEL IN THE CITY

The impact of automobile traffic on the San Francisco environment is an undeniable problem. Increasing traffic portends more damage and, ironically, greater difficulty and inconvenience in traveling by car within the city. A basic assumption of the Transportation Plan is that a desirable living environment and a prosperous business environment cannot be maintained if traffic levels continue to increase without limits. Various methods must be used to control and reshape the impact of automobiles on the city and to use other means of transportation to improve the environment.

One method for controlling automobiles is to limit the capacity of streets and highways, especially those entering the city. Some such limits will be necessary to prevent commuter travel from changing the character of many parts of the city and overburdening local streets.

A second method is to improve transit service in order to make it more attractive, both for commuters and for residents with many kinds of trip purposes. While some people ride transit because they have no alternative, others will ride only if transit is the better way to travel. Within San Francisco, fortunately, the Municipal Railway has maintained a higher level of service than most cities, rejecting the policy of reducing service when patronage falls. The approach can be made even more positive, by "selling"

transit with continuously better service to attract more riders. It is an assumption of this Plan that the convenience and comfort of transit service will be increased sufficiently to attract a larger proportion of total travel within the city. In some cases, this will have to be done by giving transit priority in the street system.

Another method for controlling the total level of automobile traffic, but the least desirable one, is that of accepting congestion in certain circumstances. Congestion signals to travelers that the system is overloaded and that the particular route or time for travel is not an efficient one. At the same time congestion is an implicit control on traffic volumes because it restricts the number of vehicles which can move through a limited space. No one likes congestion; it involves loss of time, inconvenience and frustration. It may also increase pollution and encourage drivers to use residential streets. On the other hand, when a great many people desire to travel at the same time to the same place, it is unavoidable. (This is also true in transit.) Those who can do so should travel at a different time or to a different place or by another means. It is assumed that all congestion can never be eliminated: the costs would be too high, both monetary and environmental, of providing for potential peak traffic flows. In addition, in some circumstances congestion must be used to restrict total traffic volumes, particularly during interim periods when transit is being improved and even where transit could not possibly be as convenient as automobile travel but the cost of providing for the latter is unacceptable.

Another method of controlling the impact of automobile traffic, less for the purpose of restricting its total volume than for confining its effects on other activities, is to restrict major movements to certain routes. A basic principle of the Plan is to do this, in order to avoid deleterious impacts on more streets than necessary, while providing for convenient automobile movements where it is necessary or desirable.

COMMUTER TRAVEL TO THE CITY

The assumption of the Plan for Residence that San Francisco's population will not and should not grow substantially is pertinent to the Plan for Transportation as well, when related to assumptions about job growth in San Francisco. Over the past ten years the population and resident labor force have

declined while employment has increased; the combination of these factors has caused a large increase in commuter travel to the city. Available projections portend a continuation of this trend, suggesting that the number of commuters could double from about 200,000 to almost 400,000 daily by 1990.

Although these projections may be regarded as excessive, net new jobs will be filled largely by nonresidents, causing an increase in commuter travel. Any increase will require expanded transportation, since existing facilities are strained to capacity during the rush hours. The need to provide greatly expanded facilities poses both environmental and financial problems. Simply stated, growth, like everything else, has its costs. This is true, not merely in the case of transportation, but also for a variety of municipal services.

It may be that the city can only support a certain level of employment of nonresidents without unacceptable costs, just as available services and facilities will only support a given residential population, if environmental standards are to be maintained. Transportation planning can be used to guide, shape, and control growth itself and should therefore relate to the issue of growth. However, the exact effects in terms of costs and benefits and what should be done to prevent undesirable results are not clearly understood at this time. What is a desirable level of employment is difficult to assess; little is known about the consequences either of allowing unlimited expansion or of attempting to limit growth. For this reason a consensus on this issue is difficult to achieve. The Plan for Transportation will require changes as our knowledge improves and a public agreement on values is more clearly defined.

The assumption made on the basis of present understanding is that, until an optimum employment level is established, the City should assess each new project to accommodate additional commuter travel on the basis of fiscal acceptability and impact on the quality of San Francisco's environment. To this end the Plan assumes that additions to the commuter load as a result of job growth in the city should be accommodated by public transit. Consequently the Plan does not recommend new facilities which would increase the number of cars entering the city. Automobiles cannot be the primary means of commuter travel. Even without further growth in demand, increased transit use is required to alleviate the congestion and undesirable side-effects of

commuter travel through the city's neighborhoods occurring today.

RESIDENT TRAVEL DEMAND

Accurate information on current citywide resident travel needs and desires is lacking, although the Department of Public Works has collected substantial data on specific types of travel. Assumptions as to future demands can, however, be generalized. The chief trend will be an increase in per capita trip generation for shopping, recreation, entertainment, and other travel not related to employment. Rising incomes and increased leisure time will be the basis for growth in non-work travel, as in the past. Most of these trips occur during the non-peak hours of the day and they are increasingly located outside downtown and even outside the city, on both weekdays and weekends. Weekend recreational travel, especially, will continue to grow rapidly.

At present from 70 percent to 90 percent of all this travel is by automobile. If this pattern continues, as is likely for some time, automobile traffic during the non-peak hours and on weekends will increase faster than during peak hours. Although streets built to peak hour capacities link downtown with districts in the city, that level of capacity often does not exist for interdistrict traffic. As a result, congestion and lengthy travel times may become more serious for cross-town travel than for travel to downtown. It is doubtful that the use of automobiles to satisfy most or all of this travel demand can be accomplished without unacceptable environmental costs and losses in housing and business space necessitated by street widenings or freeway construction. Therefore, transit will have to be reoriented to handle a larger share of this travel, a task that will not be easy to achieve given present routing patterns and customary usage of transit principally for peak hour travel to and from downtown.

FINANCING AND TECHNOLOGY

No radical change in transport technology is expected in the next decade. Existing technology is not being used to the extent possible. Improvements taking advantage of modern industrial techniques, such as have been made for BART, will occur. The basic requirements of transportation systems, in terms of network organization, space consumption, power sources, and speed, will probably not change. Futuristic developments such as individualized air trans-

port or computerized capsules which allow combined private-public movement systems would considerably alter the basis for transportation planning, but are unlikely to prove feasible or useful in urban areas. It is still reasonable to plan for systems requiring normal rights-of-way, a choice between private or shared vehicles, electric or gasoline power, and having normal terminal and collection-distribution requirements. One breakthrough that should be expected is the development of electrically powered wireless buses.

In the case of finance an accelerated shift of Federal and State resources from the massive expenditures of the last two decades on highways to a greater emphasis on mass transit is anticipated. It is also likely that greater attention than in the past will be paid to the needs for good intracity mass transit as opposed to commuter services. Federal and State expenditures have weighted transportation decisions at all levels of government too heavily in favor of certain modes and kinds of transportation services. The resulting imbalance must now be corrected.

Even with further assistance from Federal and State government, San Francisco will still have to finance a large portion of improvements in one way or another. In some cases new facilities for any kind of movement will be very expensive where environmental concerns demand below-grade construction. It will be essential to conserve resources by making the best use possible of the facilities we already have, making the street system serve more functions, making the fullest use of the existing inventory of transit vehicles, and encouraging private enterprise to supplement government action, especially in the area of freight movements, delivery systems, pedestrian movements, and parking. It will also be important to assure that nonresidents coming to the city pay their fair share of the costs of facilities provided by the City.

THE ROLE OF GOVERNMENT

All levels of government have long been involved in transportation planning and development, but especially at the local level has transportation been a public responsibility. The City builds and maintains the streets and operates the transit system, builds parking garages and lots and runs the airport. The reason for government involvement and control is that in a fundamental sense all transportation is public: common facilities must be provided.

Transportation facilities may be national, regional, metropolitan or local. Unlike many situations, it is relatively simple to assign responsibilities for transportation on an area basis to different levels of government without insuperable conflicts or lack of coordination. The State must be concerned chiefly with inter-regional and intercity roads and transit or railroad operations. Each locality should make its own transportation decisions. At the same time there must be coordination to achieve results desired by all.

Although division of responsibilities among governments by area is possible, it is beginning to seem less useful to allocate transportation functions by mode or facility among separate agencies within one level of government. In the region and in San Francisco there are a multiplicity of agencies responsible for various aspects of transportation operations. In the City, responsibilities are shared by the Public Utilities Commission, the Department of Public Works, the Police Department, the Airport Commission, Port Commission, the Parking Authority, and the Department of City Planning. Each of these agencies has not only some part of the transportation function but also many other responsibilities. More coordination is required; reorganization and consolidation would be desirable as a part of a general restructuring and streamlining of City government. When that occurs, the creation of a single agency for transportation should be considered. Such an agency would have a broader view of and a greater focus on transportation problems; better overall staff-level coordination could be achieved. However, if a transportation agency is created as part of a comprehensive revision to the Charter, it should be structured to avoid too much concentration of administrative authority at the expense of citizen concerns and differing points of view.

SUMMARY OF

GENERAL OBJECTIVES AND POLICIES

● OBJECTIVE 1. Meet the needs of all residents and visitors for safe, convenient and inexpensive travel within San Francisco and between the city and other parts of the region.

POLICY 1. Involve citizens in planning and developing transportation facilities and services, and in further defining the objectives and policies as they relate to district plans and specific projects.

POLICY 2. Coordinate regional and local transportation systems and provide for interline transit transfers.

POLICY 3. Ensure choices among modes of travel and give priority to each mode when and where it is most appropriate.

POLICY 4. Assure expanded mobility for the disadvantaged.

POLICY 5. Develop a financing system for transportation in which funds may be allocated without unnecessary restriction for priority improvements according to established policies.

POLICY 6. Seek means to reduce peak travel demands.

● OBJECTIVE 2. Use the transportation system as a means for guiding development and improving the environment.

POLICY 1. Support and strengthen regional efforts toward a city-centered region through development of the regional rapid transit system.

POLICY 2. Use transportation improvements in the city as catalysts for desirable development and coordinate new facilities with public and private development.

POLICY 3. Reduce pollution and noise.

POLICY 4. Design and locate facilities to preserve the natural landscape and to protect views.

POLICY 5. Organize the transportation system to reinforce sense of community identity, improve linkages among interrelated activities and provide focus for community activities.

OBJECTIVES AND POLICIES FOR TRANSPORTATION

THOROUGHFARES PLAN

● OBJECTIVE 1. Establish a thoroughfares system in which the function and design of each street are consistent with the character and use of adjacent land.

POLICY 1. Divert through automobile and truck traffic from residential neighborhoods onto major and secondary thoroughfares and limit major thoroughfares to nonresidential streets wherever possible.

POLICY 2. Design streets for a level of traffic that will not cause a detrimental impact on adjacent land uses.

POLICY 3. Maintain the capacity of the existing system of bridges, highways and freeways connecting the city to other counties at existing levels.

POLICY 4. Discourage nonrecreational and nonlocal travel in and around parks and along the shoreline recreation areas.

● OBJECTIVE 2. Provide for convenient and safe movement among districts in the city during normal travel periods.

POLICY 1. Eliminate unnecessary cross traffic conflicts and improve traffic flow along major thoroughfares.

POLICY 2. Promote increased traffic safety, with special attention to hazards involving personal injury.

● OBJECTIVE 3. Provide safe and pleasant space for pedestrians.

POLICY 1. Widen sidewalks where intensive commercial, recreational, or institutional activity is present and where residential densities are high.

POLICY 2. Retain streets not required for traffic for pedestrian circulation, open space use, and density control.

POLICY 3. Ensure convenient and safe pedestrian crossings.

POLICY 4. Partially or wholly close certain streets not required as traffic carriers for pedestrian use or open space.

MASS TRANSIT PLAN

● OBJECTIVE 1. Provide convenient, pleasant and frequent transit service in all areas of the city.

POLICY 1. Improve the speed of transit travel and frequency of service by giving priority to transit vehicles on designated streets.

POLICY 2. Intensify overall transit service in the "central area".

POLICY 3. Improve interdistrict and intradistrict transit service.

POLICY 4. Keep fares as low as necessary to obtain consistently high patronage and encourage more off-peak hour use.

POLICY 5. Clarify transit routing and establish "transit centers".

POLICY 6. Maintain a number of taxis adequate to serve the city and to keep fares reasonable.

POLICY 7. Consider possibilities for supplementary, privately operated transit services.

● OBJECTIVE 2. Develop transit as the primary mode of travel to and from downtown.

POLICY 1. Build and maintain rail rapid transit lines from downtown to all suburban corridors and major centers of activity in San Francisco.

POLICY 2. Make future rail transit extensions in the city compatible with existing BART or Muni rail lines.

POLICY 3. Continue ferries and other forms of water-based transportation as an alternative mode of travel between San Francisco and the North Bay.

DOWNTOWN TRANSPORTATION PLAN

● OBJECTIVE 1. Accommodate the role of downtown as the primary financial and administrative center for the region.

POLICY 1. Improve the public pedestrian circulation system within downtown, especially within the downtown core.

POLICY 2. Encourage short-term use of parking facilities adjacent to the downtown core.

POLICY 3. Provide needed additional short-term parking facilities in peripheral locations around the downtown core, adjacent to major thoroughfares.

POLICY 4. Develop shuttle transit systems to supplement trunklines for travel within the greater downtown area.

POLICY 5. Encourage the private sector to provide additional pedestrian space in new developments.

POLICY 6. Organize and control traffic circulation to reduce congestion in the core caused by through traffic and to channel vehicles into peripheral parking facilities.

● OBJECTIVE 2. Provide convenient and high-capacity loading points for transit travelers.

POLICY 1. Accommodate commuter bus loading, if possible, at off-street terminals; and if not, at special curbside locations where sidewalk and street congestion is not high.

POLICY 2. Enable convenient transfers by coordinating local and regional transit systems in common or nearby terminals.

● OBJECTIVE 3. Improve facilities for freight deliveries and business services.

POLICY 1. Require off-street facilities for freight loading and service vehicles in all major new developments and seek opportunities for new facilities for old buildings.

POLICY 2. Encourage consolidation of freight deliveries and nighttime deliveries to produce greater efficiency and reduce congestion.

POLICY 3. Provide short-term loading spaces on the street for small deliveries and essential services, with strict enforcement.

POLICY 4. Prohibit new sidewalk elevators in high pedestrian-use areas.

CITYWIDE PARKING PLAN

● OBJECTIVE 1. Provide parking facilities in residential areas within the capacity of the city's street system and land use patterns.

POLICY 1. Relate off-street parking requirements in new housing to expected vehicle ownership.

POLICY 2. Use existing street space to increase residential parking where off-street facilities are inadequate.

● OBJECTIVE 2. Increase short-term parking facilities in neighborhood shopping areas and near major institutional and recreational facilities.

POLICY 1. Develop off-street parking facilities in neighborhood shopping areas, especially those serving low-density communities.

POLICY 2. Locate parking garages near shopping areas and adjacent to major entertainment, recreation and institutional facilities.

GENERAL OBJECTIVES AND POLICIES

Objective 1 MEET THE NEEDS OF ALL RESIDENTS AND VISITORS FOR SAFE, CONVENIENT AND INEXPENSIVE TRAVEL WITHIN SAN FRANCISCO AND BETWEEN THE CITY AND OTHER PARTS OF THE REGION.

The City's first responsibility in the planning and operation of its transportation system is to provide the physical mobility necessary to its residents in pursuing a wide range of opportunities for work, education, recreation, and contact with others. The City must also provide for the many persons who come to San Francisco for work and pleasure and contribute to the life of the city.

Residents and visitors present a formidable array of demands for transportation services and facilities. Since all transportation facilities must by their nature be shared, at least in part, the transportation system can only meet each individual's special needs to a limited extent. A balance must be struck between the ultimate aim of providing convenient travel for all people to their desired destinations and the costs, both monetary and environmental, which such a transportation system might require.

Policy 1 Involve citizens in planning and developing transportation facilities and services, and in further defining objectives and policies as they relate to district plans and specific projects.

Citizen involvement in all planning is essential. In transportation planning, citizen involvement is perhaps even more important than in many other areas because residents provide information which is otherwise very difficult to discover: their travel needs, how they want to satisfy them, and what choices they want to make when travel demand and other desires are in conflict.

At least three different levels of citizen participation can be recognized in transportation planning. First, citywide participation is required for decisions on citywide problems, policies, and facilities. Almost all major improvements have citywide implications and should be subject to citywide discussion and debate. Secondly, most citywide facilities have some special impact on a particular part of the city, and therefore on the residents and

businesses in that area. These residents should have a special role in evaluating a project and should participate actively in the specific design of these facilities, even after certain decisions have been made on a citywide basis. Thirdly, local improvements and changes in the transportation system may have only localized impacts. The residents of the affected area should be those concerned with decisions on whether or how a change should be made if they are the only ones affected.

Policy 2 Coordinate regional and local transportation systems and provide for interline transit transfers.

Due to the large amount of travel which occurs between San Francisco and surrounding counties, in both directions, there is a continual need to ensure that waste and inconvenience are avoided through coordination of local and regional efforts. Transportation facilities are by their nature interdependent. The regional and local transit systems must be closely linked to provide for transfers. Similarly, regional highways and freeways must be integrated with the local street system; a highway should not be planned to enter the city if local streets cannot carry the traffic. Generalized destinations are converted to specific ones through the linkage of regional and local systems. Costly mistakes and redundancy can be avoided by agreement in advance on what is to be done among the many local and State agencies involved in transportation planning affecting San Francisco and the Bay Area.

All transit should provide free transfers among routes for travel within the city, although fare increments are justified for travel outside the city by BART, ferry or bus. A transfer arrangement should be made among BART, Muni and other systems to allow for transfers from regional to city systems at a reasonable incremental cost.

Policy 3 Ensure choices among modes of travel and give priority to each mode when and where it is most appropriate.

Various means of travel exist in San Francisco and the Bay Area: automobile, bus, streetcar, taxi, cable car, ferry and railroad, and soon BART. Walking and bicycling are used by many people. Flying is occasionally used as a means of intraregional travel. Each mode of travel has special advantages or disadvantages for certain kinds of travel or in different places. The least costly or most convenient

means to satisfy travel demand is not necessarily the best in the context of comprehensive planning; cost or convenience must usually be balanced against effects on the environment and impact on land use and development patterns.

A multimodal transportation system preserves a wider range of choice and satisfies a larger number of people's transportation needs than a single mode. On the other hand, relative priority should be given to a particular means of travel for certain types of trips or in specific sections of the city and region in accordance with criteria reflecting each mode's superiority or cost advantage in satisfying particular travel needs consistent with other elements of the Comprehensive Plan, especially land use, environmental and design objectives. This means that one means may be emphasized as the primary mode of travel in a specified area or for a specific kind of travel but rarely, if ever, that it should be the only means of travel. Criteria are set forth below for the major means of travel.

Criteria for Automobile Priority

Automobiles should be given priority for the following kinds of trips and/or in the described areas:

1. For shopping and recreational trips, especially where such trips are over relatively long distances or to scattered locations.

2. For intraregional trips outside the major cities and for intercity trips between non-core areas of the major cities.

3. For work trips from outlying low-density residential areas to outlying places of employment.

4. For trips occurring generally during times when travel demand is low.

5. Where business travel requires the use of an automobile.

6. In areas having the capacity to absorb additional vehicular traffic without substantial environmental damage or conflict with land uses and where transit would be prohibitively costly to serve the bulk of demand.

Criteria for Mass Transit Priority

Mass transit should be given priority for the following kinds of trips and/or in the described areas:

1. For work trips generally within San Francisco and other densely developed parts of the region, especially to all major employment centers.

2. For inter-city trips between core areas of major cities and for travel to core areas in general.

3. For trips occurring generally during periods of high travel demand.

4. Where demand for travel between any two or more relatively compact or densely developed areas is high.

5. In areas where large numbers of people with limited means or low automobile ownership reside.

6. Where travel demand exceeds the capacity of an area to absorb more vehicular traffic without substantial environmental damage or where further capacity for automobile movement or storage is very costly.

7. Where required or useful to stimulate development.

Criteria for Priority for Walking, Bicycling, or Short-Distance Transit Vehicles

Walking, bicycling, or short-distance transit vehicles should be given priority for the following kinds of trips and/or in the specified areas:

1. In parks and other recreational areas, and where slow movement, bicycling or walking is part of a recreational experience or necessary to preserve the natural environment.

2. Where concentration of activity is so high that more convenient access among inter-related activities may be achieved by walking or limited distance "people-movers" than by other modes.

3. For short trips (one-quarter mile) between residences and neighborhood convenience shopping and recreation facilities, and for intra-neighborhood visiting and socializing.

4. A network of citywide bicycle routes should link together major attractions. For safety reasons designated bicycle routes should avoid major thoroughfares and streets with transit by using parallel streets where possible. Exclusive bike lanes should be developed where physically feasible.

Policy 4 Assure expanded mobility for the disadvantaged.

Expansion of opportunities for the poor and the underemployed for work, education and recreation will depend to a large extent on the adequacy of the transportation system in serving their needs and on the cost of travel to them. The costs or inconveniences of existing means of transportation impede or bar many people from taking advantage of wider and better opportunities. The transportation system must be used in part as a tool for improving the situation of less advantaged residents by providing inexpensive and convenient service to areas of growing employment, as well as to educational institutions, medical services and recreation facilities.

Policy 5 Develop a financing system for transportation in which funds may be allocated without unnecessary restriction for priority improvements according to established policies.

Federal, State and even local financing available for transportation is generally restricted to certain modes of transportation or to certain kinds of improvements. There are funds earmarked for highway improvements, for rapid transit, and for local streets. Maintenance and development of a multimodal transportation system which is responsive to changing demands requires that funds be available for allocation according to the need for specific expenditures at certain times. Taxes and funds should not be restricted to a specific type of improvement for long periods of time.

Policy 6 Seek means to reduce peak travel demands.

Peaking of travel demands during the "rush hours" causes congestion and overcrowding and requires excess capacity for both transit and automobiles relative to normal needs. Attempts should be made to forestall additional peak loads somewhat by developing staggered work hours, encouraging shoppers and visitors not to travel during peak periods, and by altering school hours.

Objective 2 USE THE TRANSPORTATION SYSTEM AS A MEANS FOR GUIDING DEVELOPMENT AND IMPROVING THE ENVIRONMENT.

The use of a transportation system to guide the development and improvement of the city and

the region is the necessary counterpart to its function in providing mobility for residents. Mobility is not itself an ultimate goal; people only travel when there are places to which they want to go and activities in which they want to engage. The transportation system should be developed and designed to ensure the preservation and creation of activities and facilities which are useful and desirable. Travel needs cannot be satisfied without consideration of other elements of city life. The modes of transportation used, as well as the location of routes and design of the system, have a large influence on development patterns and the quality of the overall environment. There must be recognition of the system's impact and conscious design and use of transportation improvements to facilitate desirable change and to preserve what is good.

Policy 1 Support and strengthen regional efforts toward a city-centered region through development of the regional rapid transit system.

The Association of Bay Area Governments' Regional Plan 1970-1990 calls for a city-centered region, with future growth concentrated in already developed parts of the region or in completely new cities. The development of an extensive network of rapid rail transit linking the major centers of the region is required for this plan to be achieved. Care must be taken to locate routes so that the transit system itself will encourage more intensive growth in existing cities or the development of well-planned new cities. Highways should also be located and designed to avoid sprawl.

Policy 2 Use transportation improvements in the city as catalysts for desirable development and coordinate new facilities with public and private development.

Major transportation improvements, such as the new BART stations in San Francisco, may be expected to generate changes in land uses and developments geared to take advantage of the new access provided. Private developers, who will have economic incentives to develop new uses, can be encouraged to improve environmental conditions, to consolidate commercial activities, and to increase the supply of housing. Public improvements and private developments should be coordinated in advance to ensure that full advantage is taken of future opportunities where transportation facilities are built. Conversely, transportation improvements should be located



REGIONAL TRANSPORTATION POLICIES

- CITY CENTER
- MAJOR REGIONAL HIGHWAY
- ⋯ RAPID TRANSIT - Interregional and Regional
- * REGIONAL AIRPORT

- A** Major interregional and interstate automobile and truck movements should occur east of the metropolitan area, on the main spine of the Interstate Highway System.
- B** Regional highways should provide access among parts of the region, generally on the periphery of city centers.
- C** Intercity and interregional rail and bus terminals, but not airports, should be located in city centers.
- D** The regional rapid transit system should provide direct access from city centers to other city centers and to all regional airports.

and designed to support desirable development or services, recommended in other sections of the Comprehensive Plan.

Policy 3 Reduce pollution and noise.

Gasoline-powered automobiles and diesel buses pollute the air and generate substantial noise, in comparison with electric vehicles. The City has long been committed to a transit system powered by electricity, and this commitment has maintained a high level of environmental quality. The use of automobiles for travel and of motor coaches for mass transit must be limited. While technological changes may be forthcoming which will lower pollution, they are not yet available and cannot be relied upon in planning for the future. Regular, timed signalization can control and smooth the flow of traffic to reduce noise caused by constant acceleration and deceleration. Stop signs can be placed in relation to topography to avoid substantial noise.

Policy 4 Design and locate facilities to preserve the natural landscape and to protect views.

The Embarcadero Freeway has become for San Franciscans a symbol of insensitivity to the landscape in the design of transportation facilities. Its abrupt termination has become a symbol of San Franciscans' determination to preserve the natural beauty of the city. Care must be taken to ensure that street and transit improvements are made to enhance the beauty of the city and to protect views of the Bay, the Ocean and the hills.

Policy 5 Organize the transportation system to reinforce sense of community identity, improve linkages among interrelated activities and provide focus for community activities.

The manner in which the transportation system is organized influences patterns of community association and neighborhood physical identity. Transportation decisions may therefore contribute to or undermine social and environmental stability. Through traffic routes should not split neighborhoods or pose insuperable barriers to movement among them. Street design and location of parking should contribute to the establishment of pedestrian-oriented neighborhood centers where residents may congregate. Major transit routes and specific feeder systems should be located to provide good access to and from neighborhood centers for nearby residents.

THOROUGHFARES PLAN

Objective 1 ESTABLISH A THOROUGHFARES SYSTEM IN WHICH THE FUNCTION AND DESIGN OF EACH STREET ARE CONSISTENT WITH THE CHARACTER AND USE OF ADJACENT LAND.

A fundamental objective is to develop and maintain an hierarchical system of streets functioning in accordance with the planned movement of vehicles. Street design, capacity and treatment should be a direct manifestation of the street's intended function in satisfying present and prospective travel demand and non-traffic functions, such as providing open space and pedestrian ways. It is recognized that in some cases it will be necessary to determine a maximum level of traffic for which major streets will be provided, implying a tolerable level of congestion as a constraint, if other objectives of the City are to be attained.

Policy 1 Divert through automobile and truck traffic from residential neighborhoods onto major and secondary thoroughfares, and limit major thoroughfares to nonresidential streets wherever possible.

Major and secondary thoroughfares are to carry traffic among districts in the city. Local streets are intended only to provide access to and from homes and other uses within each neighborhood. To provide more efficiently for long-distance movements and to keep local streets free from heavy traffic, street design and traffic management should ensure the diversion of traffic around neighborhoods. The Urban Design Plan indicates the application of this policy in more detail and designates "protected residential areas."

Two forms of action are required: provision for through traffic on major thoroughfares and discouragement of it on local streets. To the greatest extent possible major thoroughfares should not be primarily residential in land use. The following factors determine the selection of major and secondary thoroughfares:

1. the width of the right-of-way relative to traffic capacity required;
2. the extent of transit use on the street;
3. land uses bordering the street;

4. safety of the street for moderate- and high-speed traffic;
5. the relation of the street to the definition of neighborhoods by residents;
6. the presence or absence of conflicts caused by driveways, parking, and deliveries to commercial uses.

In order to effectuate the policy to divert traffic from neighborhoods, it is necessary that increased traffic capacity on thoroughfares be balanced by simultaneous reductions on local streets. Appropriate actions will ensure not only that traffic is channeled as intended but also that new usable open space is created and that the residential environment is enhanced.

Policy 2 Design streets for a level of traffic that will not cause a detrimental impact on adjacent land uses.

The need for traffic carriers must be balanced against the adverse effects of heavy traffic on the use of adjacent land and the quality of the environment. The needs of residents for peace and quiet, safety from harm, and useful open space must be given consideration. Each area and each street of the city have different characteristics which determine the level of traffic which can be absorbed without serious adverse impacts. The following factors should be the basis for a judgment on the acceptable levels of traffic on a specific street:

1. the distance between the curb and building line established by sidewalk width or setback;
2. the presence or absence of buffering between street and building in the form of landscaping, change in elevation, or similar condition;
3. the amount of open space in the neighborhood available for use by residents relative to population density;
4. the level of pedestrian traffic;
5. the proportion of the street which is residential in land use;
6. whether residences face the street;
7. the presence of hospitals, schools,

parks, or similar facilities on or near the street.

The widening of streets at the expense of sidewalks or of setbacks should not occur where space is necessary for pedestrian movement, buffering from noise, useful open space and landscaping. This is especially true in densely populated neighborhoods with little public or private open space. In commercial areas, consideration must be given to the need for safe and convenient pedestrian movement.

Policy 3 Maintain the capacity of the existing system of bridges, highways and freeways connecting the city to other counties at present levels.

The established policy of limiting access into and through the city by automobiles should be maintained. This policy is the converse of providing for commuter travel to San Francisco by rapid transit and precludes the construction of new bridges and freeways or improvements to existing ones intended to increase total access capacity at the gateways to the city. This means no second deck for the Golden Gate Bridge, no expansion of the James Lick or Southern Freeways, no new bridges, and no new highways to the Peninsula. The proposed Hunters Point Freeway and State Route 480 extension do not conflict with this policy since their purpose is to divert existing levels of interregional traffic from local streets once such traffic has entered the city. This policy recognizes that provision for further vehicular access into the city would conflict with the environmental objectives of the city, overload the city street system, and jeopardize the city's commitment to mass transit.

Policy 4 Discourage nonrecreational and non-local travel in and around parks and along the shoreline recreation areas.

Streets in large parks, around small parks and along recreational parts of the shoreline should function primarily for access to recreational facilities and for scenic driving, not as thoroughfares. Heavy or fast traffic endangers pedestrians, cuts off access to recreation and reduces the pleasure of being in parks by causing noise and pollution. Entrances to parks should be at street intersections to the extent possible. Streets adjacent to or within parks and along the shoreline should to the greatest extent possible be designed and controlled to reduce their use as throughways. They should offer opportunities

for leisurely, scenic driving consistent with pedestrian, equestrian and bicycle movements along and across the street.

Objective 2 PROVIDE FOR CONVENIENT AND SAFE MOVEMENT AMONG DISTRICTS IN THE CITY DURING NORMAL TRAVEL PERIODS.

The primary purpose of those segments of the thoroughfares system designed for inter-district movements is to provide for efficient and convenient travel, to minimize unnecessary loss of time, avoid hazards, and to integrate the city into a functional whole. At the same time it is recognized that congestion can never be eliminated completely, especially during periods of peak demand. The intent is to provide a convenient vehicular system which functions well in meeting normal traffic demands.

Policy 1 Eliminate unnecessary cross traffic conflicts and improve traffic flow along major thoroughfares.

Excessive numbers of intersections on major thoroughfares reduce the average speed of traffic and encourage use of local streets for through movements. Intersections with local streets should be eliminated where possible to speed the flow of traffic on the arterials intended to carry the bulk of interdistrict travel and to reduce accidents. In some cases, where two major thoroughfares meet, it may be necessary to create grade separations to avoid conflicts. However, less costly measures may often suffice.

The system of signal light synchronization and sensors which detect cross-traffic at intersections should be expanded and modified to reduce congestion on major thoroughfares. Conversely, use of regulatory devices within residential areas will discourage through traffic when a good signal system is in effect on the major thoroughfares. Diagonal and perpendicular parking should normally not be allowed on major or secondary thoroughfares. Lane striping, curb cuts and service roads or lanes should provide for driveway access in a manner that will not conflict with through traffic flows.

Policy 2 Promote increased traffic safety, with special attention to hazards involving personal injury.

As overall traffic levels increase, the number of accidents also tends to rise. Many

accidents occur even where speed of travel is relatively slow, although not of the most serious kind. Various measures can be taken to reduce accidents, especially those involving serious personal injury. In some cases redesign of the roadway and of intersections to reduce conflicts between vehicles and pedestrians is required; in others all that is necessary is to improve clarity of signs and of routing so that there is less driver uncertainty and hesitation.

Objective 3 PROVIDE SAFE AND PLEASANT SPACE FOR PEDESTRIANS.

Walking is a form of transportation which must be provided for, especially in neighborhoods for short trips to local commercial and public facilities and in business areas where many shoppers congregate. Sidewalks, malls, and similar spaces provide not only for pedestrian movement but also for children's play, socializing among residents, window-shopping and just sitting and watching. Congestion occurs on sidewalks in high activity areas, just as it does on streets and inadequate space creates inconveniences for those trying to pass through and those stopping to talk or look or rest.

Policy 1 Widen sidewalks where intensive commercial, recreational, or institutional activity is present and where residential densities are high.

In many high-activity areas of the city such as downtown, Fisherman's Wharf and North Beach, sidewalks are narrower than required for pedestrians. Opportunities are present to convert some street space into wider sidewalks, landscaped strips and sitting areas where pedestrian traffic is high and through vehicular traffic is not necessary or can be accommodated on alternate routes. Through traffic should be discouraged or eliminated to avoid conflicts which inconvenience drivers and pedestrians and may increase accidents. In high-density residential areas with little open space, wider sidewalks and small plazas should be created to provide more usable space as well as to discourage through traffic.

Policy 2 Retain streets not required for traffic for pedestrian circulation, open space use, and density controls.

Proposals for street vacation often arise when a street no longer serves a necessary traffic function. Except in rare cases, street vacations should not occur where the street could serve as a valuable open space, would

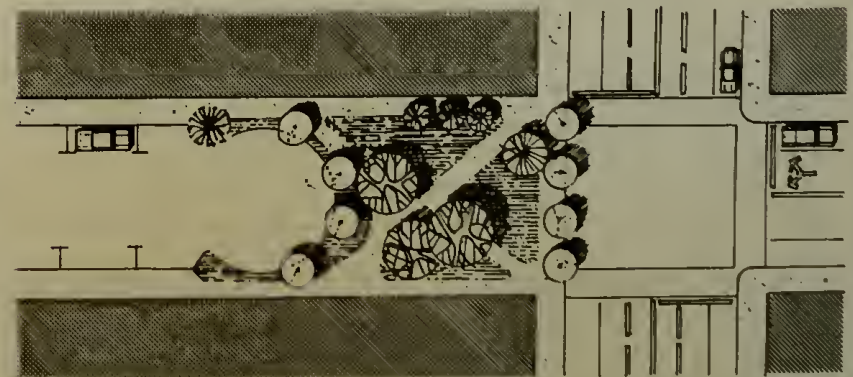
improve pedestrian circulation, or maintain control of development density consistent with assumptions underlying land use plans.

Policy 3 Ensure convenient and safe pedestrian crossings.

Where streets are designed for high volumes or relatively fast movement of vehicles, adequate provision must be made for safe and convenient pedestrian crossings. This is especially important near schools and hospitals and in high-density residential areas. Wide streets should have adequately timed lights and median strips or islands at intersections to allow safe crossings. Traffic controls should be spaced evenly since infrequent controls will often be disregarded. If grade separation of pedestrian and vehicular movement is necessary, the roadway should be depressed to maintain continuity of pedestrian paths wherever possible. If a change in pedestrian levels is required, ramps are preferable to stairs.

Policy 4 Partially or wholly close certain streets not required as traffic carriers for pedestrian use or open space.

Some streets in very active shopping areas and in residential areas can be closed wholly or partially to vehicular traffic because the streets are not required for vehicular use, except possibly at infrequent intervals or during emergencies. Partial closings can be achieved by substantially narrowing the streets or by installing temporary obstacles during certain periods of the day. Doing so would open up the street for nontraffic uses, without its loss for emergency use or access to homes and businesses. Provision should be made concurrently for replacement of on-street parking spaces in neighborhood shopping areas with off-street facilities.



A Street Closed to Traffic, Used as a Mini-park.

THOROUGHFARES

CLASSIFICATION

FREEWAYS: limited access, very high capacity facilities; primary function is to carry intercity traffic; they may, as a result of route location, also serve the secondary function of providing for travel between distant sections in the city.



Freeway Tunnel with a Local Road and Park Over



Major Thoroughfare with Residential Access Roads

MAJOR THOROUGHFARES: cross-town thoroughfares whose primary function is to link districts within the city and to distribute traffic from and to the freeways; these are routes generally of citywide significance; of varying capacity depending on the

travel demand for the specific direction and adjacent land uses.



Major Thoroughfare with Landscape Buffer to Reduce Impact of Traffic on Adjacent Uses

SECONDARY THOROUGHFARES: primarily intradistrict routes of varying capacity serving as collectors for the major thoroughfares; in some cases supplemental to the major thoroughfare system.



Secondary Thoroughfare with Parking Bays and Landscaping to Reduce Impact upon Adjacent Residences

RECREATIONAL STREET: a special category of street whose major function is to provide for slow, pleasure drives, cyclists and pedestrian use; more highly valued for recreational use than for traffic movement.

COLLECTOR STREETS: relatively low-capacity streets serving local distribution functions primarily in large, low-density areas, connecting to major and secondary thoroughfares. To be identified in area plans.

LOCAL STREETS: all other streets intended for access to abutting residential and other land uses, rather than for through traffic; generally of lowest capacity.



Local Street with Landscaping and Minimal Thru Traffic

Relationship between Function and Physical Design: no rigid design standards can be established on the basis of the functional categories established above although higher capacities will generally be associated with freeways and major thoroughfares. Capacities must be determined on the basis of the level of traffic demand, the space available for traffic and the nature of the surrounding environment.

DESIGN GUIDELINES FOR MAJOR STREETS

- Where residential uses abut on major and secondary thoroughfares, they should be screened visually and physically wherever possible.
- A consistent pattern of trees at regular intervals should be used to identify major streets.
- Extensive buffers should be used to separate busy thoroughfares from active pedestrian areas.
- The brightness (apparent illumination) of street lighting should be greater than on residential streets and the color or hue different from that on residential streets.
- Destination information should be concentrated on major streets, with signs used to route traffic on the major street system.

DESIGN GUIDELINES FOR LOCAL RESIDENTIAL STREETS

- Excessive traffic speeds and volumes should be restricted and discouraged by every means possible.
- Where possible, vehicular access directly to and from local streets should be from other than major thoroughfares, e.g., via a secondary thoroughfare or collector street.
- When alternate access is possible, residences should not access to major thoroughfares.
- Local streets, other than collectors, should be primarily for access to residences and to serve for emergency vehicles; pedestrian-dominant streets with the maximum feasible amount devoted to environmental amenities desired and needed by the residents.
- Residential streets should be well-lighted without being excessively bright.

DESIGN GUIDELINES FOR INTERSECTIONS

- Street width, traffic controls, destination and route information and illumination should be maximized at the intersection of two major thoroughfares.
- Two intersecting residential streets should have minimal roadway width, wide sidewalks and no change in illumination from that on the streets themselves.
- Intersections of residential streets and major thoroughfares should be minimized; where they must intersect, cross and left-turn movements should be limited by curb alignments or medians.

GUIDE TO THOROUGHFARES PLAN

Except where indicated no increase in the vehicular capacity of any thoroughfare is intended.

Maritime Parkway: a new parkway, inland from the Embarcadero service road, is proposed from Howard Street to North Point Street to handle traffic from the Marina and Fisherman's Wharf to downtown. Refer to Northern Waterfront Plan.

Bay Street and North Point Street: a one-way pair is proposed to connect the new Maritime Parkway with Marina Boulevard, providing a better route between the Marina and downtown and improved local circulation near Fisherman's Wharf.

State Route 480: a new freeway on an unspecified alignment should eventually be built from Howard Street to Doyle Drive. The route must be below grade and constructed to avoid any residential displacement. Design capacity not greater than that of the Golden Gate Bridge less vehicles using Park-Presidio Boulevard. Access and egress must be controlled to avoid use of local streets. Removal of the elevated Embarcadero Freeway from Howard to Broadway is a pre-condition to the construction of this freeway.

Van Ness Avenue: the possibility of depressing portions or all of Van Ness Avenue from the Central Freeway to Lombard in order to separate through traffic from local circulation should be studied.

Geary Boulevard: to the extent possible most east-west travel in the Western Addition and Inner Richmond should be channeled onto this street to divert traffic from nearby residential streets. Grade separations at key intersections and improved left-turn connections are desirable.

Franklin Street: if and when Van Ness Avenue is depressed for through traffic, the function of this street between Pine and Lombard should be only for local circulation.

Gough Street: this street should not be widened or made unidirectional north of Pine Street.

Pine Street-Bush Street: when the Richmond rapid transit line is built, priority should be given to reducing capacity and landscaping these residential streets west of Van Ness Avenue.

Lombard Street: if and when Route 480 is built, Lombard may no longer be required to carry North Bay traffic. It would continue as a link between the Marina and downtown and possibly for some North Bay buses. At that time a reduction in the number

of lanes should be considered to allow for increased parking and landscaping.

Fell Street-Oak Street: in order to improve the living environment for residents on these streets and to provide better pedestrian access to the Panhandle, lanes should be undergrounded in certain sections for through traffic, with a simultaneous reduction in the number of surface lanes. The overall vehicular capacity of the route is not to be increased and the Panhandle is not to be disturbed.

El Camino del Mar: if feasible, the slide area on this shoreline road should be bridged.

Bay Front Drive: a new recreational drive along the northern shore of the Presidio is proposed to connect Marina Boulevard to Lincoln Boulevard and a rebuilt El Camino del Mar to form part of a continuous shoreline drive.

Doyle Drive: this road should be improved for greater safety; design capacity should be no greater than that of the Golden Gate Bridge less vehicles using Park-Presidio Boulevard.

Sunset Boulevard: this parkway should be extended below Golden Gate Park to improve access between the Sunset and the Richmond.

Cross-over Drive: this connection in Golden Gate Park between Park-Presidio Boulevard and Nineteenth Avenue should be redesigned and realigned as a below-grade roadway. There should be no connection with John F. Kennedy Drive.

Kezar Drive: this road should be undergrounded to restore the corner of the park to full recreational use; design capacity no greater than that of the Fell and Oak couple.

John F. Kennedy Drive: through, non-park traffic on this recreational drive should be eliminated.

Frederick Street: when Kezar Drive is undergrounded, this street will no longer be required for truck traffic and should be changed to a local street function.

Great Highway: the design capacity of this road should be reduced substantially to correspond with its recreational function; emphasis to be on slow pleasure traffic and safe pedestrian crossings.

Parnassus Avenue: if the University of California Medical Center wishes to connect its campus

on both sides of this street, the University should depress the roadway to maintain a through route for transit and vehicular traffic.

Laguna Honda Boulevard: improve alignment for safety and transit access to Forest Hills Station.

Market Street: this street should be no more than six lanes between Van Ness and Castro, with pedestrian havens at intersections.

Guerrero Street: the possibility of reducing the capacity of this street should be explored once BART is operating and the Southern Freeway is completed.

Nineteenth Avenue: this heavily trafficked street should ultimately be rebuilt as a parkway with the same capacity and similar design as Park-Presidio Boulevard. Simultaneous measures should be taken to eliminate through traffic on parallel streets.

Hunters Point Freeway: on the assumption that the Southern Crossing is not built, this committed freeway or a similar facility such as an industrial parkway, should be constructed on the same general alignment. Refer to South Bayshore Plan.

Mansell Parkway: for many years a recreational parkway has been proposed to provide some connection to McLaren Park from the South Bayshore and the Ocean View-Ingleside-Merced area. An improved connection to Jamestown Road to the east from Mansell and an extension of Mansell south to Geneva Avenue is proposed; the parkway should not be designed for heavy traffic.

Harney Way: an extension on fill is proposed to serve Candlestick Park and new residential and recreational development. Refer to South Bayshore Plan.

O'Shaughnessy Boulevard: functionally, this route must provide for cross-town movements; in design, it should remain a scenic-recreational drive, not intended for heavy traffic.

Quint Street: the unimproved section of this street between Third and Oakdale should be fully improved for industrial traffic to divert trucks from Third Street.

Embarcadero Freeway: the elevated portion between Howard and Broadway and the Washington-Clay and Broadway ramps should be removed as soon as possible but no later than during construction of Route 480.



THOROUGHFARES PLAN

- FREEWAY
- MAJOR THOROUGHFARE
- SECONDARY THOROUGHFARE
- RECREATIONAL STREET
- Refer to GUIDE TO THOROUGHFARES PLAN for Criteria for State Route 480
- Refer to GUIDE TO THOROUGHFARES PLAN and SOUTH BAYSHORE PLAN for Criteria for Hunters Point Freeway
- Refer to DOWNTOWN TRANSPORTATION PLAN for Details Within This Area

MASS TRANSIT PLAN

Objective 1 PROVIDE CONVENIENT, PLEASANT AND FREQUENT TRANSIT SERVICE IN ALL AREAS OF THE CITY.

San Francisco has one of the best and most extensive transit systems for a city of its size. Nevertheless, the City should work for an even better system. Without further improvement in the mass transit system, other objectives of the Transportation Plan and of other elements of the Comprehensive Plan cannot be achieved. It is recognized that travelers cannot be diverted from automobile use to transit unless transit provides equal or better service. It is also recognized that consistently high patronage must be obtained to justify the costs of a good transit system. Transit must take the lead in attracting travelers by offering the quality of service desired; one test of the service is the level of patronage achieved, another is its public image.

If residents are to use transit and have access by transit to desired destinations, service must be extended to within a reasonable walking distance of their homes. In addition, the need to transfer is a recognized deterrent to transit usage. In general, one-fourth mile should be the greatest walking distance necessary to reach a transit stop. Where topography makes even this distance too great, the intervals should be less.

Policy 1 Improve speed of transit travel and frequency of service by giving priority to transit vehicles on designated streets.

Transit travel time is at present dependent to a large extent on street congestion caused by automobile traffic. Transit speeds are even lower than those of autos because of the stops which must be made. Conflicts between transit and automobiles are disadvantageous to both. If transit speed is to be improved without reduced convenience of access to transit, the conflict between automobiles and transit must be eliminated as much as possible. This is being achieved with the construction of the BART and Muni subways. The use of subways is limited to a few routes, because of high costs and length of construction time required. Much improvement can be achieved almost immediately by giving priority to transit on certain streets through the use of exclusive lanes and/or by

equipping buses and trolleys with devices to trigger lights in their favor at intersections. Other actions should include restricting autos from streetcar and cable car track and eliminating automobile turning movements which conflict with transit vehicles.

Policy 2 Intensify overall transit service in the "central area".

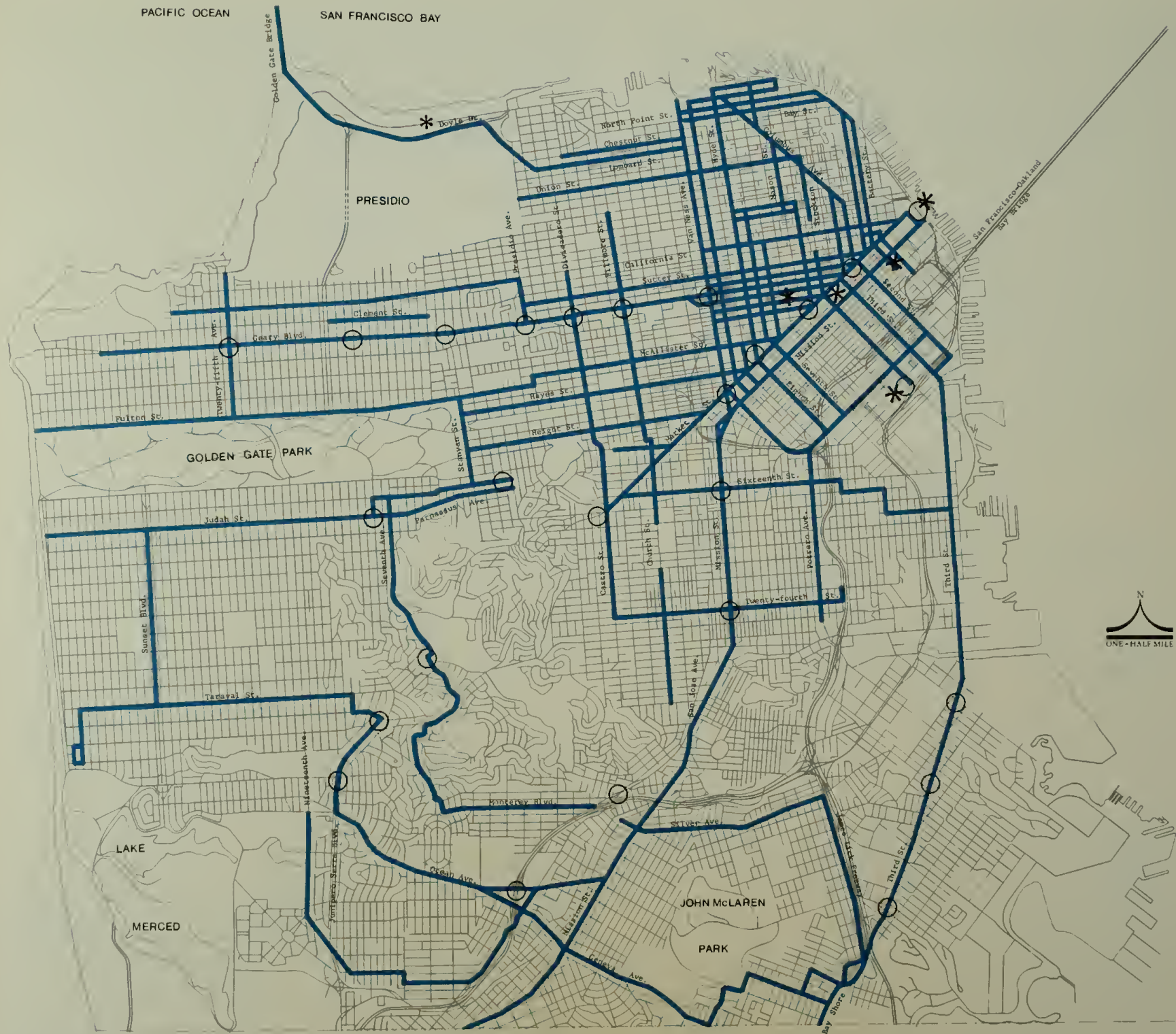
That part of the city which is approximately east of Castro-Divisadero and north of Army Street houses half of the population and 80 percent of the city's employment. More travel occurs to and within this area than any other; traffic levels are highest, streets are more congested and pollution levels are higher. Since it is the oldest, most densely developed and growing part of the city, parking is more difficult and streets narrower. It is therefore appropriate to give highest priority to an intensification and enhancement of transit service in all directions within this area. There should be a fine grid of transit routes with frequent service, modified to adapt to topographical conditions and connecting to the rapid transit lines, with special lines and vehicles for shopping, tourist and recreational trips superimposed to provide added service and an especially pleasant form of travel.

Policy 3 Improve interdistrict and intra-district transit service.

Over 80 percent of transit vehicles provide service to and from downtown because of the enormous demand on the transit system by downtown workers and shoppers, especially during peak hours. However, during non-peak hours, while travel to downtown for shopping and entertainment is still substantial, there is much more travel among districts in the city. This is also the fastest growing demand due to increased leisure time and incomes. Better transit service is necessary to complement automobile travel.

Policy 4 Keep fares as low as necessary to obtain consistently high patronage and encourage more off-peak hour use.

Transportation is a public service not unlike street lighting, sewage service or fire protection. Nearly all transportation is sub-



TRANSIT PREFERENTIAL STREETS PLAN

- * REGIONAL TRANSIT TERMINAL
 - TRANSIT CENTER
 - TRANSIT STREET
- * Doyle Drive, Lombard, Bay, North Point, Sansome and Battery Streets Should be Designed to Facilitate the Movement of the Marin Commuter Buses.

sidized with public funds. It is no more reasonable to expect transit to "pay its way" than it is to expect streets to pay their way. Were there methods of charging directly for use of all transportation and pooling the resulting revenues, such a practice might be useful. However, to charge directly for transit use, where only indirect taxes are imposed on automobile use, discourages transit use and discriminates against those who do not or cannot own a car.

Where transit patronage is lower than it might be, the system is not used to its full potential and taxpayers are burdened by fixed costs which exceed the benefits provided. Especially during non-peak hours, transit has excess capacity. First priority should be given to encouraging substantially greater patronage for travel between 9:30 a.m. and 3:30 p.m. and between 6:30 p.m. and 6:30 a.m. on weekdays and on weekends.

Policy 5 Clarify transit routing and establish "transit centers".

A major effort should be made to make clear to residents and visitors the transit services available in San Francisco. Many persons may fail to realize the existence of transit for many of their trips. "Transit centers" should be established at major transfer points, with as many lines as feasible passing by these centers, where thorough information on routes is available.

Policy 6 Maintain a number of taxis adequate to serve the city and to keep fares reasonable.

Taxis serve as an essential supplement to the transit system, not merely for tourists but for many residents and workers in the city who either do not have a car or find regular transit service inconvenient for a particular trip or both. The elderly often rely on taxis for necessary shopping trips and for reaching medical facilities, as do many others without automobiles when transit is not available. Although taxis should continue to be regulated, more competition should be allowed for improved service and lower fares.

Policy 7 Consider possibilities for supplementary, privately operated transit services.

For many years privately owned jitneys have operated in the Mission district, modeled on similar service successfully provided in Latin America. In some respects they are a

model of a good compromise between the necessary regularity of municipal buses and the on-call and door-to-door service provided by taxis. There are other areas of the city where private operators might find it profitable to provide such service for intradistrict and interdistrict travel and they should be encouraged to do so.

Objective 2 DEVELOP TRANSIT AS THE PRIMARY MODE OF TRAVEL TO AND FROM DOWNTOWN.

One basic principle of this plan is that the automobile can no longer serve as the primary means of travel to and from downtown. An alternative means of equal convenience and greater efficiency is required. While good, direct service is now available from almost all parts of the city to downtown so that transit is the dominant means of travel during the rush hours, travel is often slow and vehicles are very crowded during the rush hours. Crowding can never be eliminated completely. However, it is important for continued transit patronage and rider comfort that trunklines serving outlying districts provide seats for all passengers and that short-term standees be allotted adequate space. Travel to downtown should be possible within 30 minutes or less from all parts of the city. This can be achieved by an increase in express buses, exclusive bus lanes, and construction of rapid transit lines, such as the Muni Market Street subway.

The use of transit to travel from the suburbs to downtown and other major centers in the city can only become primary over the long term with the development of a good regional transit system connecting downtown to other parts of the region. BART is the first step in the development of this system and it should be expanded.

Policy 1 Build and maintain rail rapid transit lines from downtown to all suburban corridors and major centers of activity in San Francisco.

The city and much of the region is and should continue to be committed to a transit-first policy with respect to intercity commuter travel. Rapid rail transit probably offers the most competitive service in relation to automobile travel as well as offering the highest capacities possible in transit service. The use of BART or any other line-haul rail system is dependent to a great extent on access to and from stations in outlying residential areas and employment centers. Well-planned suburban

TRANSIT SYSTEM

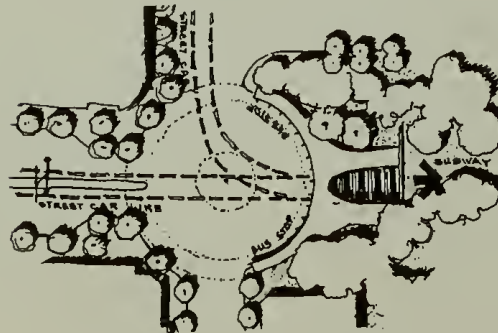
CLASSIFICATION OF ELEMENTS

RAPID TRANSIT LINE: mass transit operating on an exclusive right-of-way without interference from traffic or pedestrians, either below, above or on the surface; achieves higher speed and higher capacity; generally electric vehicles on rails but may be self-propelled electric or combustion engines; regardless of vehicle type, outer portions of lines in low-density areas may leave exclusive right-of-way so that technically those portions of the route are not rapid transit.

LOCAL TRANSIT OR SURFACE TRANSIT: mass transit operating on city streets, expressways and freeways with other traffic and subject to interference by other users of the streets, both vehicles and pedestrians; may be electric, gasoline or diesel buses.

SHORT-HAUL TRANSIT, SHUTTLE TRANSIT OR "PEOPLE MOVERS": service over short distances (less than two or three miles) intended to move passengers within congested areas and to facilitate access to and from transit, parking and other terminals.

TRUNKLINE: a rapid transit line or express bus route which serves relatively distant travel from one area to another area of the city or region quickly, requiring transfer at origin or destination for most passengers to a feeder line.



Transit Centers Should Provide Easy, Safe, Clear, Sheltered Transfer Between Lines.

TRANSIT CENTER: a major transfer point, usually including a rapid transit station; travelers should be able to travel in many directions from such a place and have information available on citywide routes.

FEEDER LINE: service from or to homes or destinations to or from stations on a rapid transit trunkline or an express bus stop.



TRANSFER POINT: any point at which two or more transit lines moving in different directions cross.

TRANSIT STREET: a street on which an important or several local transit lines operate and where interference with transit by other traffic should be minimized.

DESIGN GUIDELINES FOR TRANSIT ROUTES

- Major transit transfer locations called "transit centers" should be highly visible and identifiable; wherever possible, there should be adjacent space for shelter, information and amenities, and, if possible, off-street loading.

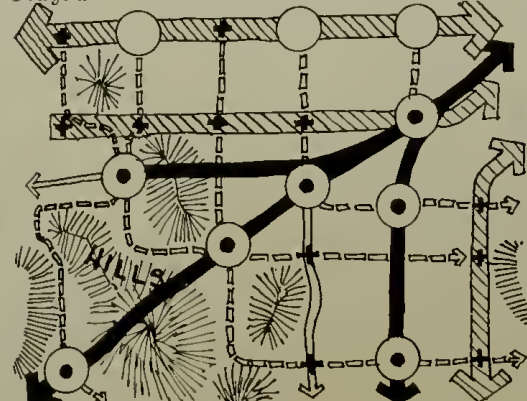


- Special lighting should be used to identify transit stops.
- Lines named for streets, such as the "Clement" bus, should stay on those streets as much as possible.
- As many routes as possible should pass through "transit centers".

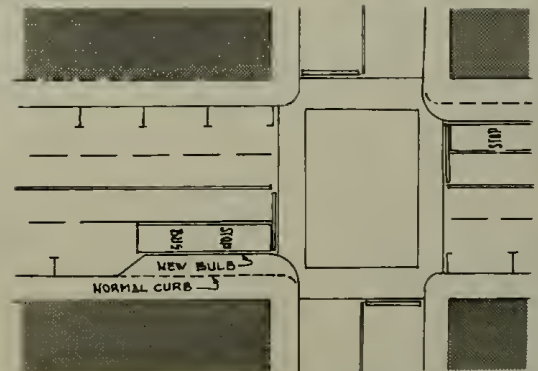
- Routes should, to the extent possible, run in straight lines between well-known termini.

- Access to all corridors should be available from each BART-Muni Market Street subway station.

Diagram-Direct Links Between Corridors



- Subway
- Subway Station
- Transfer Point
- Streetcar Line
- Surface Routes Should Link Major Transit Corridors as Directly as Possible.
- Major Surface Transit Corridor
- Transit Center



- Waiting areas should be extended into the parking lane and vehicle stops made in the right traffic lane on major transit routes.

- Graphic symbols and color coding should be used to identify specific transit routes or districts and places served.

- Vehicles should be distinctively marked to identify the type of service they offer - local, express, shuttle, limited-stop.

- Sheltered space should be provided at all major transfer locations and heavily patronized stops.

feeder systems should be provided. Existing transit service from adjacent counties can be much improved pending rapid transit development by instituting permanent bus lanes on bridges, freeways and thoroughfares. An exclusive bus lane on the Waldo Grade and Golden Gate Bridge, Doyle Drive and Lombard Street would, in connection with augmented bus service from Marin County, greatly improve service. Peninsula commuters would have better transit service if exclusive lanes were provided on the James Lick Freeway for expanded bus service.

Growth in air travel requires that city-to-airport travel be provided much more efficiently than is possible with automobiles. As the downtown continues to strengthen its position as the financial center and cultural attraction of the region, air travel tied to downtown will grow rapidly. The regional rapid transit system should include all regional airports to promote the most efficient use of these facilities and to relieve the increasing traffic congestion resulting from air travel growth.

Priorities for Rapid Transit

First priority in the recommended rapid transit system should be given to construction of an extension of the BART line from Daly City to San Francisco International Airport. This line would accommodate airport-generated travel demand and commuters from northern San Mateo County, the major source of commuters to the city. This line should eventually go to San Jose.

Highest priority for construction within the city should be given to a Richmond line along a Geary Boulevard alignment. Substantial employment, shopping and medical facilities in this corridor and the volume of trips to downtown made by residents in the Richmond and Western Addition will support this line. It should provide the potential link for a line to Marin County to the north and through the Bayshore to San Mateo County to the south.

Rapid Transit System Criteria

Although each rapid transit line will serve a corridor with different populations, activities, topography and travel characteristics, certain basic criteria should be established to ensure that the system will perform its necessary function as the major means of travel to downtown and other high activity centers. Each line should meet the following conditions:

- an exclusive right-of-way, with at least the most heavily congested portions of the trip in subway;
- frequent feeder service to rapid transit stations where residents served or destinations are beyond walking distance;
- stations within the city located generally at no greater than half-mile intervals, with some exceptions in low-density areas;
- stations to be located at primary destinations and transfer points;
- average operating speeds, including station stops, between 20 MPH and 30 MPH or approximately twice that of normal surface lines;
- sufficiently high capacity in seating to provide peak hour seated travel for all long-distance travelers (15 minutes in travel time or more);
- continuous service at frequent intervals.

These criteria should be taken as guidelines for the development of each rapid line; modifications can be made where necessary to accommodate the line to a particular area.

Policy 2 Make future rail transit extensions in the city compatible with existing BART or Muni rail lines.

In order to ensure potential linkages, interchange of vehicles and cost savings, new rail rapid transit routes should be of the same basic type as either the BART or Muni systems, depending on the potential link. Other special systems, such as the cable cars or other limited service systems, need not be of the same character.

Policy 3 Continue ferries and other forms of water-based transportation as an alternative mode of travel between San Francisco and the North Bay.

For seaside communities in Marin County ferry or high-speed water craft should continue to be a viable and pleasant means of travel to downtown. The mistake of the past in eliminating alternative modes as new ones are built should not be repeated. The ferries could continue service even if rail transit is built, with competition between the two avoided by noncompetitive route alignments. Ferries offer the unique opportunity to provide much needed transportation relief for weekend recreational trips.

DOWNTOWN TRANSPORTATION PLAN

Objective 1 ACCOMMODATE THE ROLE OF DOWNTOWN AS THE PRIMARY FINANCIAL AND ADMINISTRATIVE CENTER FOR THE REGION.

San Francisco is and will continue to be the regional center for finance, corporate and governmental administration, and business services related to these sectors of the economy. The transportation requirements of a downtown dominated by these business functions, as opposed to others such as manufacturing, are unique. The proper functioning of downtown is dependent upon compactness of development, strength of internal accessibility, and convenient access to downtown from other parts of the region and the world. The Mass Transit Plan recognizes the latter need by calling for rapid transit between downtown, the airports and areas where employees reside. The Downtown Transportation Plan is concerned primarily with the need for proper circulation within downtown for vehicles and pedestrians and with the organization of terminals and parking facilities which form part of the downtown-oriented segments of the transportation system.

Policy 1 Improve the public pedestrian circulation system within downtown, especially within the downtown core.

Face-to-face contacts and frequent communication by other forms among businessmen in downtown require easy access on foot within the most densely developed parts of downtown. Pedestrian traffic is very heavy in the retailing, entertainment and financial districts. A few streets should be restricted entirely to pedestrian, transit, and delivery vehicle use and sidewalks should be widened on other streets heavily traveled by pedestrians.

Policy 2 Encourage short-term use of parking facilities adjacent to the downtown core.

Adjacent to the downtown core, including the financial and retail districts, there is the greatest need for short-term parking for shoppers, visiting businessmen and other visitors who, for various reasons, cannot be provided with adequate transit service. On the other hand, employees generally have convenient transit service available and should be discouraged from using these parking facilities by high charges on all-day use.

DOWNTOWN TRANSPORTATION PLAN: CLASSIFICATION OF ELEMENTS

PRIMARY VEHICULAR STREETS: streets functioning as major routes for automobile and truck movements into and out of the downtown area, chiefly to and from the parking belts for automobiles.

TRANSIT ARTERIALS: routes of major arterial transit lines.

DOWNTOWN CORE AUTOMOBILE CONTROL AREA: that intensely populated area in which priority must be given to the efficient and pleasant movement of consumers, visitors and business clients; a continuing effort should be made to control and limit automobile movement into and through the area in favor of pedestrian, transit and service vehicle access and circulation; limited street and parking space within the core should be made available for these uses, especially for consumers within the retail district.

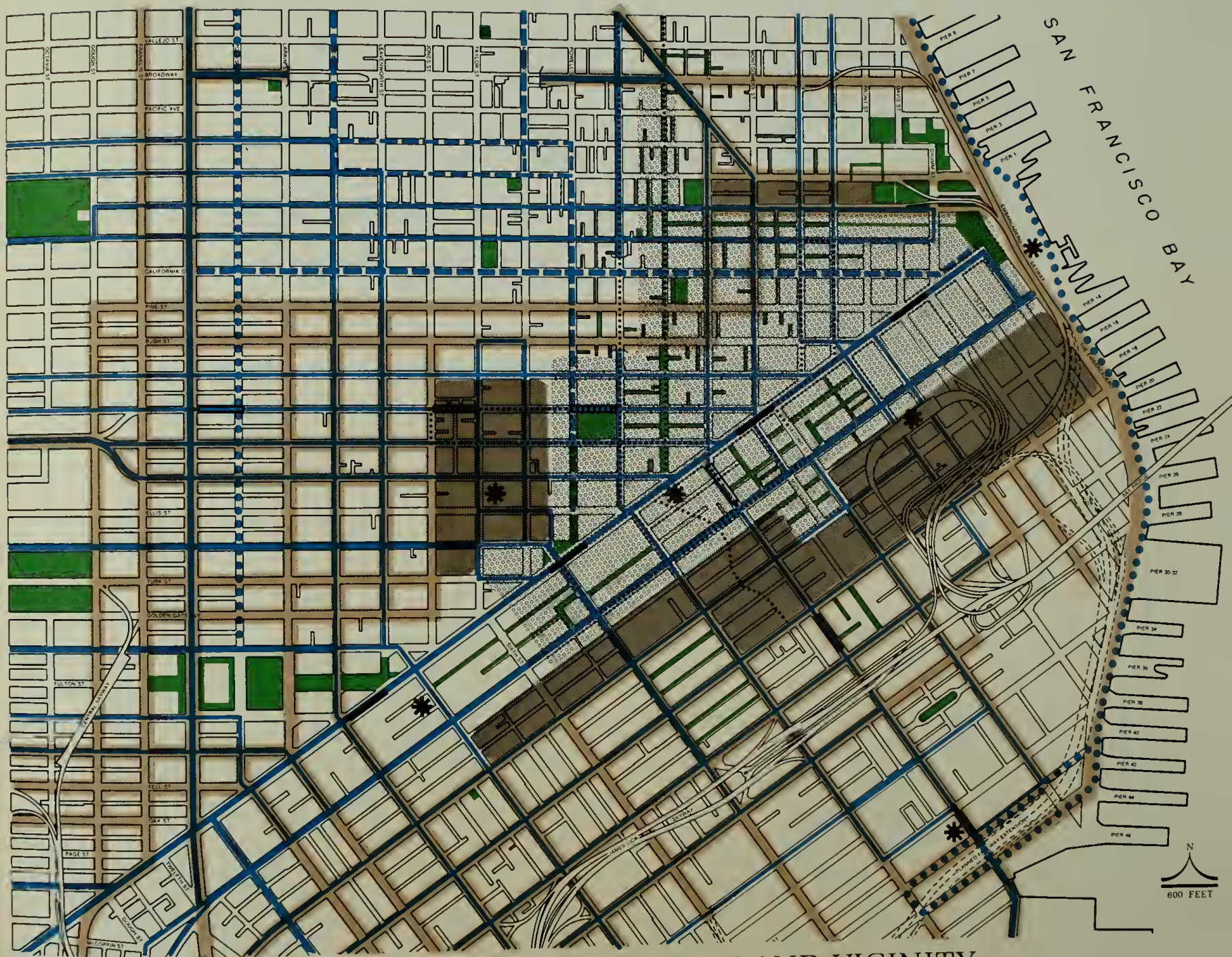
PARKING BELTS: areas appropriate for new short-term parking facilities located and designed to intercept vehicles entering downtown from major thoroughfares before they enter the downtown core automobile control area.

PEDESTRIAN-TRANSIT-SERVICE STREETS: streets which should be oriented primarily or exclusively to satisfaction of needs for pedestrian, transit and servicing requirements.




SHUTTLE TRANSIT: short-distance, small vehicle transit service for intradowntown movements, especially from the parking belts to the downtown core and among functional areas of downtown.




SPECIAL RECREATIONAL TRANSIT: transit having a recreational appeal while also serving as a means of moving within the downtown area or from downtown to popular shopping, entertainment or tourist attractions; should involve use of special vehicles such as double-decker buses with an open lower platform, minirails, elephant trains or minibuses.




METROPOLITAN TRANSIT TERMINALS: off-street embarkation and debarkation facilities for commuters and other intercity travelers.






TRANSPORTATION PLAN FOR DOWNTOWN AND VICINITY

 DOWNTOWN CORE
Automobile Control Area
 PARKING BELT
 PARK

 PRIMARY VEHICULAR STREET
 TRANSIT ARTERIAL STREET
 PEDESTRIAN/TRANSIT/
SERVICE STREET

 METROPOLITAN TRANSIT TERMINAL
 Existing
 Proposed } BART/MUNI STATION

SPECIAL TRANSIT SYSTEMS
 Cable Car Route
 Special Vehicle System
 Special Shuttle System

Policy 3 Provide needed additional short-term parking facilities in peripheral locations around the downtown core, adjacent to major thoroughfares.

High levels of vehicular traffic within the most densely developed and most intensively used downtown core are inconsistent with adequate provision for pedestrian movements and with the nature of the overall thoroughfare system. Such vehicles should be intercepted at parking facilities located around the core next to major thoroughfares so that uncongested movement and high internal accessibility may be provided within the core. Frequent transit service and adequate pedestrian ways should be provided for the final link of these trips.

Policy 4 Develop shuttle transit systems to supplement trunk lines for travel within the greater downtown area.

While all parts of the downtown core are within easy walking distance of each other, greater downtown is sufficiently large in area that pedestrian access is not convenient. Access should be improved with special shuttle systems similar in function to the Shoppers Shuttle buses and the cable cars. Access is particularly important between the Civic Center and the financial and retail districts, and between the Hall of Justice and other developments south of Market and areas north of Market Street.

Policy 5 Encourage the private sector to provide additional pedestrian space in new developments.

Pedestrian traffic is increased in direct proportion to the amount of floor space added by new developments; therefore, it is to some extent a responsibility of private developers to ensure adequate provision for new needs occasioned by their buildings. A combination of requirements and incentives should be used to ensure the location of pedestrian resting areas, passageways and extra-wide sidewalks.

Policy 6 Organize and control traffic circulation to reduce congestion in the core caused by through traffic and to channel vehicles into peripheral parking facilities.

Traffic which now passes through the downtown core in order to reach other destinations, as in North Beach, the Northern Waterfront,

Western Addition, or South of Market, should be channeled around the downtown core in order to leave space for pedestrians and vehicles with core destinations. A necessary adjunct to the intercept principle of the downtown parking plan is to control traffic circulation to provide access to parking facilities and to discourage it beyond them.

Objective 2 PROVIDE CONVENIENT AND HIGH-CAPACITY LOADING POINTS FOR TRANSIT TRAVELERS.

The number of persons entering downtown for work and for other purposes increases each year. Most people, especially commuters, will come by mass transit of one form or another. They must be accommodated by properly located and designed terminals which permit efficient boarding and disembarkation and easy access to final destinations.

Policy 1 Accommodate commuter bus loading, if possible, at off-street terminals; and if not, at special curbside locations where sidewalk and street congestion is not high.

It is ultimately desirable that intercity commuter buses and rail transit be accommodated at specific terminals, as is the case with the Southern Pacific commuter trains and BART stations. Off-street terminals are required in order to provide an adequate amount of back-up space for passenger waiting, ticketing and loading. Such terminals also reduce the amount of pedestrian and vehicular congestion on the streets, which peaks during the rush hours. Until adequate terminals can be provided, commuter buses should load and unload at designated and easily identifiable curbside locations. These locations should be chosen according to levels of pedestrian and traffic congestion caused by other movements, consistent with the provision of convenient transit service.

Policy 2 Enable convenient transfers by coordinating local and regional transit systems in common or nearby terminals.

One or two new terminals should be developed or an existing one upgraded to accommodate the buses and rail services provided by various regional and local lines. The terminals should be in close proximity to or fully integrated with BART stations and Muni terminals in order to make transfers from one line to another as easy as possible by a short walk. Priority

should be given to a location or to locations where existing and future intensities of development are highest, as for instance, near the BART Montgomery Street station.

Objective 3

IMPROVE FACILITIES FOR FREIGHT DELIVERIES AND BUSINESS SERVICES.

As the downtown grows, the need for adequate facilities for freight deliveries and daily services to businesses will increase. As a result, the conflict between the movement of goods and services and the movement of customers, employees and visitors, whether on foot, by transit, or in private vehicles, will increase. Various kinds of goods require different facilities for delivery.

Policy 1

Require off-street facilities for freight loading and service vehicles in all major new developments and seek opportunities for new facilities for old buildings.

The Planning Code provides standards for off-street freight loading facilities, and these standards should be continually reviewed to determine their adequacy. Since much of the downtown will consist of existing buildings for the foreseeable future, it is also necessary to look for opportunities for improving off-street facilities.

Policy 2

Encourage consolidation of freight deliveries and nighttime deliveries to produce greater efficiency and reduce congestion.

Even if there were adequate off-street loading facilities, there would still be conflict between vehicles delivering large shipments of goods and other traffic. The actual case, where many deliveries must be made across the sidewalk from on-street loading spaces disrupts pedestrian movements and increases accident potential. A system of consolidating deliveries to downtown firms should be developed, with emphasis on deliveries during the late evening and early morning periods. Deliveries in the early afternoon when the daytime population of downtown reaches its peak should be discouraged.

Policy 3

Provide short-term loading spaces on the street for small deliveries and essential services, with strict enforcement.

On-street loading and stopping spaces will continue to be required to accommodate small delivery vehicles and essential services. Strict enforcement to restrict these spaces to the vehicles for which they are intended is necessary. A licensing system may be one practical method of identifying authorized vehicles. In general, vehicles used by workers performing repairs should be required to use off-street parking facilities.

Policy 4

Prohibit new sidewalk elevators in high pedestrian-use areas.

The narrowness of sidewalks in downtown and the high levels of pedestrian traffic make necessary the prohibition of new sidewalk elevators for delivery purposes. Safety problems for pedestrians and continual interruption of pedestrian traffic are caused by these facilities. An exception might be applicable if restricted to nighttime deliveries.

CITYWIDE PARKING PLAN

Objective 1

PROVIDE PARKING FACILITIES IN RESIDENTIAL AREAS WITHIN THE CAPACITY OF THE CITY'S STREET SYSTEM AND LAND USE PATTERNS.

Vehicle ownership by city residents has been rising despite a decline in population, partly because of an increase in small households. This indicates the need for more parking facilities and raises serious questions about the level of automobile ownership which can be supported by the street and parking system. Automobile ownership in San Francisco is the highest in relation to land area of any city in the country. Since most of the city's housing, especially in the more densely developed areas, was built prior to the time when the automobile became the dominant mode of travel, off-street parking spaces do not exist in adequate numbers. The size of many streets and the need to provide free flows for traffic limits the number of

on-street spaces which may be made available in many areas. Increased parking facilities, especially off the street, need to be made available; however, this plan recognizes that just as the street system cannot accommodate all potential traffic, so the City cannot provide for an unlimited level of automobile storage. A reasonable level must be provided for and measures must be taken to discourage vehicle accumulations beyond that level.

Policy 1 Relate off-street parking requirements in new housing to expected vehicle ownership.

Off-street parking in all new housing developments should be according to formulas intended to guarantee the provision of needed spaces, without requiring excesses. The level of transit service in an area and the size of units should be criteria helping to determine the proportion of parking spaces required. Use of common parking facilities for several buildings should be encouraged and there may be a place for public provision and leasing of long-term resident parking in high-density neighborhoods which are already developed.

Policy 2 Use existing street space to increase residential parking where off-street facilities are inadequate.

Local streets are of such width in many areas that improved parking conditions can be obtained by shifting from parallel to diagonal or perpendicular parking without a major investment. This policy has long been followed on steep hills for safety reasons and can be applied even where streets are flat in order to maximize the use of existing street space. Care must be taken, however, to ensure that the street be more than a parking lot. Proper landscaping is required to prevent lights from shining into dwellings at night and breaks in rows of cars should be provided to avoid the monotony and unsightliness of unending rows of vehicles.

There is a limit to the number of automobiles which the city can accommodate, either moving or in place, especially in the dense neighborhoods. Increasing automobile ownership has created serious deficits in residential parking facilities. The possibility of a new, much higher tax on second and third cars and stricter enforcement of on-street parking regulations should be explored.

Objective 2

INCREASE SHORT-TERM PARKING FACILITIES IN NEIGHBORHOOD SHOPPING AREAS AND NEAR MAJOR INSTITUTIONAL AND RECREATIONAL FACILITIES.

Although a primary objective of the entire Mass Transit Plan is to encourage improved transit service to shopping areas, recreation, and institutional facilities, such as hospitals, automobile use will continue for much travel to these places. Especially, in the case of shopping trips, transit patronage is difficult to obtain where large packages must be picked up or many stops at different places far apart are necessary. Therefore, parking near neighborhood shopping areas will be required if they are to remain economically viable.

Policy 1 Develop new off-street parking facilities in neighborhood shopping areas, especially those serving low-density communities.

Some neighborhood shopping facilities serve only residents of the immediately surrounding areas, most of whom travel on foot. Others tend to attract consumers from adjacent communities or in low-density parts of the city from a distance not easily traversable on foot. New parking facilities to get automobiles off the street should be built to increase space for pedestrians and to relieve congestion. Both public and private garages for common use should be encouraged, and commercial space should be provided at ground level in order to maintain and improve the business environment in these areas. Where appropriate, air rights development for public purposes, housing or commercial usage should be encouraged.

Policy 2 Locate parking garages at the edges of shopping areas and near major entertainment, recreation and institutional facilities.

As in the case of downtown, areas for parking should be provided at the fringe of the area of most activity in order to provide adequate pedestrian space, intercept and divert traffic, and consolidate land uses into viable and well-planned agglomerations. Especially in the case of Golden Gate Park and Fisherman's Wharf, traffic through which is generally undesirable, parking facilities should be on the edges and, if necessary, some form of public transportation should be provided for internal circulation.

POLICY IMPLEMENTATION: SYSTEM IMPROVEMENTS

The purpose of this section of the Improvement Plan for Transportation is to recommend specific projects and priorities for carrying out the objectives and policies for transportation. This section is not intended to be included in the Comprehensive Plan, but it serves as an interpretation and elaboration of the proposed Comprehensive Plan element. Some proposals are made primarily to initiate public discussion; all will require evaluation during the review period.

THOROUGHFARES IMPROVEMENT PROGRAM

The focus of the Thoroughfares Plan is on improvements necessary to divert existing traffic from residential areas, to reduce accidents, to improve traffic and transit flow on major thoroughfares and to expand the scenic-recreational street system. Since one of the basic assumptions of the Plan is that unlimited automobile traffic is not desirable in the city, few projects are recommended which will increase the overall vehicle-handling capacity of the city; the emphasis is on controlling traffic routes and impact and on improving the existing street environment. This does not mean that all actions proposed are simple or inexpensive; many of the measures proposed will be more costly than alternatives with severe environmental drawbacks. If the Plan is to be

implemented, money will have to be spent for greater use of depressed and tunneled rights-of-way, grade separations at intersections and other such improvements. In many cases the preferred action on major streets is no action since there is no desire to increase the traffic capacity of the street. Implied in such an approach is a direction of resources to transit and local street improvements. All proposed projects will necessitate a high level of capital improvements program funding, based in part on gas tax revenues.

DIVERSION OF TRAFFIC FROM "PROTECTED RESIDENTIAL NEIGHBORHOODS"

A policy of both the Improvement Plan for Transportation and the Urban Design Plan is to divert through traffic from residential areas to improve the livability of San Francisco's neighborhoods. The projects proposed to improve major streets are intended to and will allow this to be done due to the expanded capacity of the major thoroughfare system. In order to avoid an increase in overall traffic without diversion from neighborhoods, it will be necessary to take simultaneous action to discourage through traffic in neighborhoods. The methods by which this can be done will vary street by street. Some of the more general methods are:

- Necking out of intersections and street landscaping to reduce the

"through appearance" of the street;

- Sidewalk widenings on local streets to reduce effective roadway dimension;
- Cul-de-sacking short streets at existing intersections with major thoroughfares or mid-block cul-de-sacking on local streets and creation of play areas;
- Increasing stop signs on local streets where timed signal streets exist nearby.

The first step in carrying out this program is to identify those areas in which highest priority should be given to planning with the residents measures which can be taken to reduce traffic on their streets.

Area Priorities

There is a basic problem in establishing area priorities for study and implementation of the "protected residential areas" policy based simply on need. Areas which should receive high priority are those experiencing the highest amount of through traffic. It is precisely these locations where steps to reduce through traffic will be most difficult. Routes along the periphery of these areas are already congested. This situation occurs chiefly in the neighborhoods close to downtown in the Marina, Inner Mission,

RESIDENTIAL STREET PROTECTION IMPROVEMENTS

Area/Streets	Action	Scheduling
South Bayshore	Looping and cul-de-sacking of local streets per South Bayshore Plan; coordinate with Harney Way, Quint Street, Oakdale Avenue, Hunters Point Freeway projects.	1972-74
Haight-Ashbury	Closing, cul-de-sacking, looping and necking out at intersections to reduce through traffic in accordance with citizen-approved recommendations of Haight-Ashbury area plan.	1972-74
Inner Mission	Initiation of street protection actions upon completion of BART and Southern Freeway; an incremental approach is appropriate with initial actions extended depending upon results and resident interest; coordinate with Model Cities program.	1973-
Sunset and Parkside	Elimination of local street intersections with major and secondary thoroughfares and streetcar streets; coordinate with implementation of Transit Streets Program and Great Highway project; continuous program.	1972-
Western Addition	Initiate intensive program of protecting residential areas in this area from through traffic; coordinate with redevelopment.	1974-
Outer Richmond	Selected cul-de-sacs, street loops, and elimination of intersections between local and major streets, especially near Geary, Balboa and California.	1974-

Other projects should be undertaken on request of residents in order to respond to residents' concerns and to improve local street conditions in as many areas as possible as quickly as possible.

Western Addition, North Beach and Russian Hill. In the hillier neighborhoods topography itself acts as a strong disincentive to through traffic so that, except for isolated problems, there is not a high level of through traffic. In the Inner Mission, Marina and Western Addition, on the contrary, the levels of traffic are quite high due to commuter travel, travel from other districts and local travel. From the point of view of need, action should be directed immediately toward reducing traffic on local streets in these districts.

In terms of the likelihood of being able to move toward a substantial reduction of through traffic and reclamation of street space for open space use, the best possibilities exist in the outlying residential neighborhoods, for example in the Sunset, Outer Richmond and South Bayshore districts.

Recommended Approach

The essential ingredients for moving ahead quickly to protect residential streets are adequate financing, establishment of priorities for funding, and use of available staff for planning among the Department of Public Works, the Department of City Planning and neighborhood citizen groups. In order

to pull together these necessary elements, the following should be undertaken:

- An agreement should be reached to allocate and commit 10 percent or not less than \$1,000,000 of gas tax revenues in annual capital improvements for local residential street protection.
- One-half of the funds available annually should be spent in high-need areas and one-half in areas where residents request action or where street protection is easier to achieve.
- Existing staff in the Department of Public Works and the Department of City Planning should do detailed planning with neighborhoods on the basis of requests and known needs.

SELECTED THOROUGHFARE IMPROVEMENTS

In accordance with the policies of the Thoroughfares Plan, projects are recommended and priorities assigned among them on the basis of each project's contribution to increased safety for motorists, pedestrians and transit patrons, an improved environment on

presently heavily traveled streets, and implementation of the policy of diverting automobile and truck traffic from residential neighborhoods by improving the design and, on occasion, increasing the capacity of nearby thoroughfares. Projects are also recommended to carry out the policy of discouraging through, nonrecreational travel within Golden Gate Park and along Ocean Beach and creating recreational streets for pleasure driving, cycling and walking. Where improvements to increase the capacity of the thoroughfare system are recommended, they generally involve elimination of bottlenecks at intersections through grade separations or depression of parts of roadways for through traffic. These methods allow for preservation of a livable environment, while improving traffic and transit flow on major streets. Very few projects are recommended for constructing new thoroughfares, the few being essential to remove automobile and truck traffic from local streets in adjacent areas.

The following list of projects, grouped by priority, consist of presently known feasible and desirable actions. Only major projects are included.

Street	Action/Description	Proposed Scheduling	Estimated Costs
Maritime Parkway (North Point to Broadway)	Build a 4-lane divided, landscaped parkway to divert traffic from nearby areas and to provide a new shoreline drive per the Northern Waterfront Plan.	1971-74	\$3,080,000
Bay Street North Point Street	Convert to one-way couple and landscape between Embarcadero and Van Ness per Northern Waterfront Plan to continue from Maritime Parkway and serve Fisherman's Wharf area.	1973-74	N.A.
Beach Street Jefferson Street	Eliminate or severely reduce vehicular traffic per Northern Waterfront Plan for greater recreational use.	1973-74	N.A.
O'Shaughnessy Boulevard	Curve straightening and improved superelevation between Elk Street and Portola. One lane in each direction divided and improved lighting.	1971-72	520,000
Portola Drive	Underpass at Woodside Avenue and O'Shaughnessy Boulevard for Portola Drive through traffic to bypass three-way intersection.	1972-74	6,012,000
Great Highway	Narrow to 4-lane divided roadway on smooth curvilinear alignment within existing right-of-way; new parking areas on beach side, signal lights, shortening and renovation of underpasses and new pedestrian cross-overs to beach.	1971-73	N.A.
Harney Way	Widen from Bayshore Freeway to Jamestown Avenue for improved connection to Candlestick Park and to future recreational shoreline drive.	1971-73	722,000
St. Francis Circle	Build underpass for Portola Drive traffic to Sloat to improve transit movement and traffic flow.	1971-74	3,025,000
Hunters Point Freeway or Expressway	Limited access, high-capacity loop roadway for diversion of industrial and Candlestick Park traffic from South Bayshore neighborhoods; refer to South Bayshore Plan.	1972-76	N.A. (State and Federal financing)
Quint Street	Improve and widen for industrial traffic from Third Street to Silver Avenue.	1973-74	N.A.
Oakdale Avenue	Widen west of Quint and narrow east of Quint to Third.	1973-74	N.A.
Cross-over Drive	Underground to remove heavy traffic from Golden Gate Park; design capacity no greater than at present; extend under Lincoln Boulevard to 19th Avenue if feasible.	1973-74	N.A. (State financing in whole or part)
John F. Kennedy Drive (Main Drive)	Narrow to reduce through traffic with possible barriers during middle of day on weekdays and throughout weekend; new crosswalks for pedestrians and stop signs.	1973-74	N.A.
Doyle Drive	Reconstruction and realignment for improved safety at same design capacity as Golden Gate Bridge less vehicles using Park-Presidio Boulevard.	1973-74	N.A. (State and/or Federal financing in whole or part)
Sunset Boulevard	Depress through Sunset Boulevard traffic at Judah and Taraval to eliminate transit-traffic conflict and to provide for new Cross-Sunset Transit line turning movements.	1973-75	N.A.
Nineteenth Avenue	Depress through traffic at Judah and Taraval to eliminate traffic-transit conflict.	1975-76	N.A.
Embarcadero Freeway	Underground or remove elevated structure from Howard to Broadway, including ramps. First stage removal from Broadway to Washington should occur as soon as possible; no temporary ramps to the Embarcadero from the stub end at Washington should be provided.	1973-76	N.A. (State and/or Federal financing in whole or part)

M E D I U M P R I O R I T Y T H O R O U G H F A R E I M P R O V E M E N T S , A F T E R 1 9 7 5

Costs and Scheduling to be Determined Later

Street	Action/Description
Kezar Drive	Underground to remove traffic from corner of Golden Gate Park; design capacity no greater than existing.
Laguna Honda Boulevard	Widen in parts, reconstruct and realign for a 4-lane divided roadway; provision for Forest Hill station bus turn-around for transfers.
Tunnel under Fort Mason	By agreement with the Federal Government, construct a two-way, 6-lane tunnel for connection between Bay-North Point couple and Marina Boulevard; design for eventual inclusion as part of underground Route 480 and connection with Van Ness underground.
Parnassus Avenue	Depress from about Hillway to Fifth Avenue for campus pedestrian plaza above; should be designed to accommodate extension of subway for "N" Judah line from Sunset Tunnel; University of California to pay for basic roadway.
Sunset Boulevard	Extension by depressed and tunneled route below Golden Gate Park to improve Sunset-Richmond connection.
Maritime Parkway	Extend from Broadway to Howard.
South Bayshore Shoreline Drive	Develop new shoreline drive per South Bayshore Plan; coordinate with redevelopment for new residential community and shoreline park.
Presidio Shoreline Drive El Camino del Mar	By agreement with the Federal Government, construct a new shoreline drive to connect Marina Boulevard to El Camino del Mar and bridge the slide area on El Camino del Mar for continuous shoreline drive from San Mateo County line to the Northern Waterfront.
Van Ness Avenue	Depress roadway for through traffic from Fell to Lombard and give priority for transit movement and local circulation on surface.
Fell Street Oak Street	Underground through lanes between Baker and Laguna to allow reduction in number of surface lanes and sidewalk widenings; possible later extension to Stanyan.
Nineteenth Avenue	Depress under Sloat Boulevard intersection for through traffic.

L O W P R I O R I T Y T H O R O U G H F A R E I M P R O V E M E N T S , A F T E R 1 9 8 0

Costs and Scheduling to be Determined Later

Street	Action/Description
Portola Drive	Underpass at Clipper for through traffic to eliminate three-way intersection.
State Route 480	Extend underground from Broadway to Baker; no displacement; not more than three lanes in each direction; limited access between Baker and Howard.
Junipero Serra Boulevard	Separate grade of Junipero Serra or 19th Avenue at intersection to improve transit and traffic movements.
Fillmore Street	Tunnel between Jackson and Union for improved transit and traffic connection between the Marina and Western Addition.
Holloway	Depress under 19th Avenue at intersection to reduce congestion.
Turk Street	Depress under Masonic for through traffic to reduce congestion.

MASS TRANSIT IMPROVEMENT PROGRAM

The Mass Transit Plan calls for constant improvement of San Francisco's elaborate public transit system, as well as related regional transit systems which serve San Francisco residents and commuters. Extension of the rapid transit system and related improvements to the local transit facilities must occur, if the objectives of the Plan for transportation are to be accomplished. Due to the high capital cost of rapid transit, routes are limited to locations with high potential demand. In San Francisco the rapid transit system must be oriented to downtown and pass through other important employment centers. The local transit system comprises the type of Muni service predominant in the city: buses, streetcars and other transit vehicles operating on city streets. The Transit Preferential Streets Plan is addressed to improving this service. The capital cost for improvements to the local transit system is much less than for rapid transit development and routes can be finely distributed throughout the city offering convenient service to all residents.

At present most of Muni's equipment, personnel and resources are and must be devoted to serving the peak demands for downtown-oriented travel since half of all transit travel in the city is to, from or within the downtown area. Despite this requirement, Muni has been able to offer fairly convenient cross-town service in most parts of the city. As the rapid transit system is developed, opportunities will exist to take advantage of that system to serve the bulk of downtown-oriented travel, thus freeing potential resources and equipment for enhancement of cross-town, interdistrict transit service. The first opportunity will come with the completion of BART and the Muni Market Street subway. The Rapid Transit Plan will take a long time to implement. As a result, interim measures are suggested to improve transit service during the development period.

RAPID TRANSIT DEVELOPMENT

The rapid transit system is intended to offer a form of transit attractive enough to become the predominant mode of travel to downtown from other parts of the city and the region. This means that the relative speed, comfort, convenience, and cost of travel must be greater in combination than automobile travel will offer. What will be required to achieve this superiority cannot be the same in every area. For suburban users, door-to-door service cannot often be provided; the advantage for these long-distance travelers will be speed, freedom from driving, and savings on parking costs. For many San Franciscans more direct door-to-door service will be provided and for others,

faster and more comfortable travel to downtown than exists now even if they must transfer. In some areas cross-town travel will be much better through new rapid transit connections.

It is assumed, in accordance with the policies of the Mass Transit Plan, that the rapid transit system will be a rail system, either with third-rail power like BART or with overhead wires for surface streetcar operation during portions of routes like the Muni subway-surface lines. A rail system is felt to be the best solution in terms of capacity, speed and comfort for the high level of demand which the proposed system would serve. In addition, the near-completion of two rail systems provides an opportunity for a completely integrated transit system in the future if the same types of equipment are used.

The trunklines are the backbone of the rapid transit system and must be exclusive rights-of-way. Surface operation on outlying portions of the routes may prove acceptable, as in the Sunset, Ingleside and Noe Valley. A bus system, however, is not thought to offer sufficient long-run capacity to serve those routes in the city for which rapid transit is proposed.

Development Priorities

The ultimate rapid transit system consists of a network of four rapid transit trunklines radiating out from downtown serving seven corridors of movement from outlying employment and other activities in the city and adjacent counties. Two of the four trunklines will soon exist: the BART East Bay-Daly City line and the Market Street subway. Extensions of these trunklines and two new lines would complete the rapid transit system.

Citywide priorities for expansion of the rapid transit system are based on the relative urgency of needs to satisfy existing and future travel demand, likelihood of early implementation, and coordination with rapid transit already under construction. The priorities recommended are also based on an awareness of areas in which rapid transit development can substantially improve the environment of areas in which through traffic is now quite heavy or where development possibilities would be enhanced.

BART East Bay-Daly City Line: Airport Extension. The Bay Area Rapid Transit District will soon assume operation of their transbay line which will provide service between the East Bay and Daly City through downtown San Francisco and the Mission corridor. This line will have an exclusive right-of-way for the entire route and will link with other East Bay routes across the Bay. In downtown San Francisco it will run on the lowest level of the Market Street subway, below the Muni

Market Street lines.

The highest priority for expansion of the rapid transit system is a continuation of the BART line on an exclusive right-of-way to San Francisco International Airport. Priority for this line is based on the large travel demand generated by the airport itself and by San Mateo commuters in the northern part of the county. Eventual extension of this line to San Jose, as a regional priority, is anticipated by 1985 and San Francisco should urge early planning for this extension.

The extension to San Francisco International Airport should meet the following guidelines:

- Service should be continuous and without transfer between the airport and downtown, requiring use of the same vehicle type and operational system used for the BART system.
- The airport station should be located within the airport passenger complex to provide convenient access to embarkation points and to avoid the need for transfers by passengers with baggage.
- Stations should be located in San Mateo County to attract as many San Francisco commuters as possible, providing park-and-ride options.
- The line should be completed, if possible, by 1975, using the existing Muni right-of-way for much of the alignment.

The Richmond Line. San Francisco's second priority for transit and its highest priority for new rapid transit construction within the city is the Richmond line. The line would serve one of the most densely populated corridors in the city and one which generates a very large number of transit trips to downtown. Due to the narrow configuration of the Richmond-Western Addition corridor, a new line along a central alignment would serve a major portion of the residents in this area with direct trunkline service to downtown and, via connections to BART, to the East Bay and the Mission. This line would also connect the city's major concentration of medical facilities, the Nihonmachi, and some important citywide shopping areas with the downtown retail and entertainment area. It is ultimately planned that this line would be extended to Marin County to serve Marin commuters working in downtown, the Richmond and the Western Addition and to provide an improved means of travel to Marin recreational areas for San Franciscans. Target for completion of the portion of the line within the city is 1980. Extension of the line to Marin County by about 1990 is dependent upon an

agreement with the Golden Gate Bridge, Highway and Transportation District or annexation of Marin County to the BART District.

The Richmond line should meet the following criteria:

- peak hour design capacities for resident travel at a minimum of 10,000 persons seated and 20,000 total;
- stations at intervals of about one-half mile or less between the vicinity of the Southern Pacific Depot and Masonic Avenue and not greater than three-fourths of a mile between Masonic Avenue and the end of the line near 45th Avenue;
- subway operation at least throughout downtown west to Park-Presidio Boulevard;
- travel time from the outer end of the line to Market Street not exceeding 30 minutes;
- a Market Street station directly connecting to the Montgomery Street station for transfer to the BART and Muni lines;
- stations located near major concentrations of medical, shopping, and recreational facilities and places of employment;
- potential adaptation for service between Marin County and downtown San Francisco, preferably space for a third set of tracks for express service.

The suggested alignment for engineering studies is from a terminus near the Southern Pacific Depot at Third and Townsend past Yerba Buena Center and the Montgomery Street station at Market, then west along Geary or Post Street and Geary Boulevard to 45th Avenue. This alignment serves all major trip destinations in the corridor and downtown and provides for connections from the Southern Pacific commuter depot as well as direct transfers to the BART and Muni Market Street lines. This line could eventually be extended south as the Bayshore Line described below.

Since one of BART's three highest priorities is construction of a line in northwest San Francisco, it is urged that preliminary engineering studies and detailed planning for this line by BART and the City commence at the earliest possible time.

Muni Market Street Subway: Subway and Surface Extensions. The Market Street subway for Muni lines will be completed within about four years, including renovation of the Twin Peaks tunnel. This subway will serve as the rapid transit trunkline for the existing

streetcar lines.

Three existing lines, the "K", "L", and "M", will merge into trains at West Portal for subway operation to the Embarcadero station. The "N" Judah line and "J" Church line will merge at Church and Duboce Street for subway operation to the Embarcadero station. Travel time on all the streetcar lines will be reduced significantly by construction of the new subway and capacity for both seated and standing passengers will be increased potentially by fifty percent. Modern articulated two-unit streetcars designed and built for the City will operate individually on surface portions of the routes and in train lengths of up to five cars in the subway. Their joining in trains for subway operation is the key to greater capacities and more frequent service than now exists.

Three early extensions of the streetcar lines on surface streets are recommended; while these are not technically part of the rapid transit network, these extensions are required in order to take advantage of the improved service offered by the subways, as well as to improve equipment handling.

Short extensions of the "K" and "M" lines to the Balboa Park BART station are recommended for implementation as soon as possible to provide feeder service to BART for residents in this area and to improve access from the BART station to San Francisco State College, Lake Merced and Stonestown Shopping Center. These two extensions are scheduled together since they should be coordinated with construction of the new Muni car barn. The "K" line extension is already committed and the "M" extension should logically be done at the same time.

The third proposed extension consists of new cross-Sunset streetcar service in the median of Sunset Boulevard between the Taraval and Judah lines. This line is conceived to consist of extensions of the Judah and Taraval lines, offering new service for Sunset residents and improved no-transfer service for many city residents to the Zoo and Golden Gate Park. This line is also needed in order to provide shorter routes for moving Sunset equipment to the Muni car barn and is included in the Muni's Transit Improvement Program. This extension is planned for completion by the time the new subway is in operation.

A later extension of the subway portion of the Market Street lines is recommended: construction of a subway from the western end of the Sunset Tunnel to Ninth Avenue. This extension is desirable in order to eliminate a difficult surface alignment of the existing "N" Judah line in order to improve scheduling in the Market Street subway. The subway would also allow improved transfer possibilities to

interdistrict and local routes and would improve transit service to the University of California Medical Center and Golden Gate Park. The suggested alignment for the Sunset extension is a roughly direct route underground from the western portal of the tunnel under Parnassus Avenue and Judah Street to Ninth Avenue. Construction should be coordinated with the depression of Parnassus Avenue and completed by 1985. Ultimately it would be desirable to complete the subway by undergrounding the line on Duboce Avenue.

Bayshore Line. The density of trip generation in this corridor will not for some time justify the development of a high capacity rapid transit line. Improvements in normal surface transit can satisfy the needs of residents and workers. However, it is eventually expected that adequate trip demand for a Bayshore line between downtown San Francisco and the airport through the eastern part of the city and northeastern San Mateo County will be justified as employment and residence grow in this corridor. This expectation is based in part on an assumption that the BART Daly City-Airport line will have been extended to San Jose, replacing existing Southern Pacific commuter service and that growth in air travel will require a second line.

The alignment for this line, probably not to be constructed before 1985 or 1990, should be along Third Street. The line would serve Candlestick Park, neighborhoods in the South Bayshore and Potrero Hill, and port facilities and industries along the shoreline. This line might be developed as an independent line ending at the Southern Pacific Depot or Market Street or as an extension of the Richmond line to the south. Detailed criteria should await a time closer to the possibility of construction.

Costs and Financing

The complete rapid transit network will be quite costly, although substantially less than the number of freeways or expressways which would be required to handle the same amount of travel. The City alone will not be able to finance the full amount. It is assumed that Federal mass transit grants will be available, whether directly or by way of revenue-sharing, to finance two-thirds of the capital costs and necessary planning studies. Financing will vary somewhat in terms of the local share for each line, depending on the participation of BART, annexation of new counties to the BART District, availability of shared gas taxes for transit, and other possible sources of revenue. It is expected that the local share of the Richmond line will be financed by the entire BART District in accordance with the high priority assigned by BART to construction of a second line in San Francisco in its first-stage expansion.

STAGED PROGRAM FOR RAPID TRANSIT DEVELOPMENT

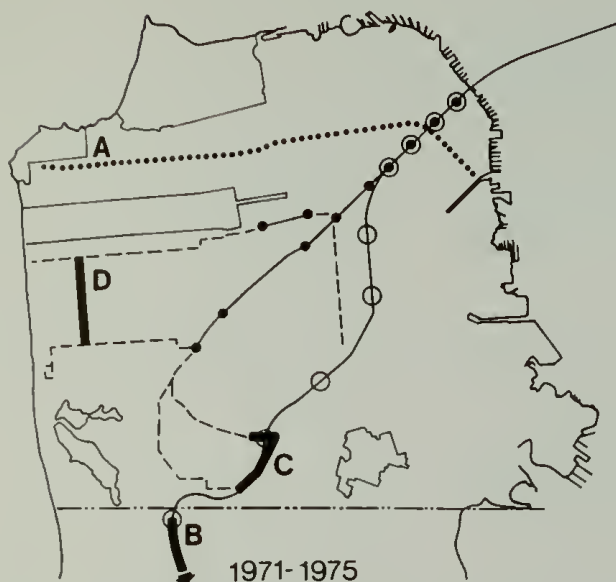
Surface
---○---
Subway

Route and Station

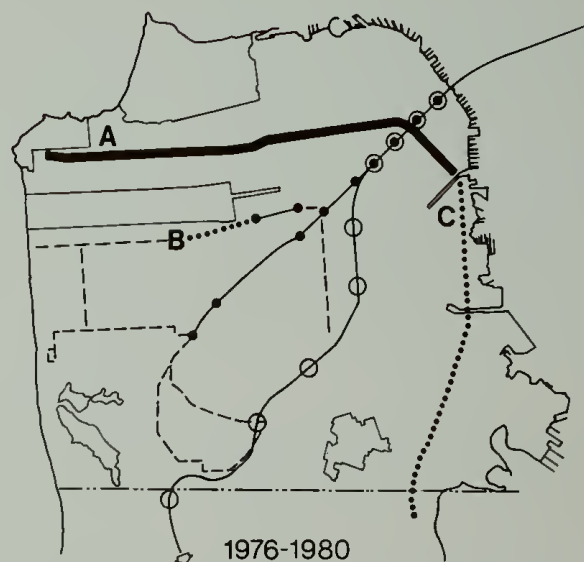
..... Study

--- Begin Construction

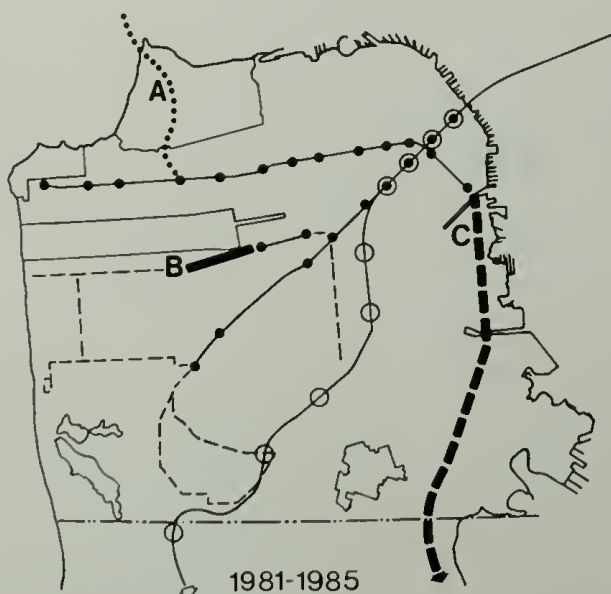
— Complete Construction



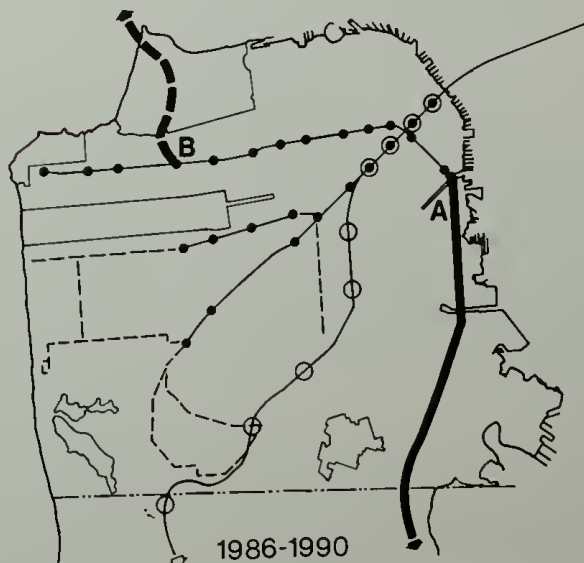
- A..Begin engineering for Richmond Subway.
- B..Complete BART extension to airport.
- C..Complete "K" and "M" lines extension to Balboa Park Station.
- D..Complete Cross-Sunset surface line.



- A..Complete Richmond Subway.
- B..Design subway from Sunset Tunnel to Ninth Avenue.
- C..Study feasibility of Bayshore line to San Francisco Airport.



- A..Undertake study of Richmond line extension to Marin County.
- B..Complete Sunset subway to Ninth Avenue.
- C..Begin construction of Bayshore line.



- A..Complete the Bayshore line.
- B..Begin construction of the Richmond line extension to Marin County.

The airport line may be financed jointly by San Francisco and San Mateo County through an agreement, or if San Mateo joins BART, by BART. Similar alternatives are available for the Marin extension of the Richmond line.

Of most immediate concern are those lines planned for early implementation, including the surface extensions of the Muni subway-surface streetcars. Financing for the cross-Sunset and "K" line extensions is included in the nonprofit corporation improvement program being developed by Muni; a large part will be paid by a Federal grant. The "M" line extension should also be included. Later construction of the Sunset subway extension will probably have to be financed by local bond issue or by the nonprofit corporation, unless shared gas taxes are made available.

ESTIMATED COSTS

(1970 constant dollars)

Rapid Trunklines

Airport Extension	\$ 216 million
Richmond Line (subway)	260 million
Sunset Subway extension	45 million
Bayshore Line (subway-aerial to airport)	250 million
Marin Extension (subway-aerial to Novato)	250 million

Surface Extensions

Cross-Sunset	\$ 650 thousand
"K" Line	600 thousand
"M" Line	750 thousand

On the assumption that Federal assistance will be available for two-thirds of the cost of all projects, San Francisco's share would probably run between \$100 million and \$120 million, depending on the number of other counties joining the BART District or on alternative financing arrangements. With construction costs escalating at about eight percent per year, the earlier construction takes place, the greater the savings.

SURFACE TRANSIT IMPROVEMENT PROGRAM (1971-1976)

Even with the development of rapid transit, the regular local bus and trolley lines will continue to be the primary form of public transit in San Francisco. Before and during rapid transit construction many improvements should be made in Muni surface operations to make transit more attractive as a way to travel in and to the city. Improvements are proposed in three broad

areas: transit speed on city streets, new recreational transit vehicles which are fun to ride, and new or altered routes to enhance service and take advantage of the rapid transit lines.

Transit Streets Program

The Transit Preferential Streets Plan assigns priority to transit movements on important transit streets. The purpose of the Plan is to eliminate conflicts between transit and other vehicular traffic in order to reduce transit travel time. Travel time is one of the most important factors affecting transit patronage; substantial improvement in travel time can generally be expected to increase the attractiveness of transit as a means of travel within the city.

Several factors determine overall transit travel time: the number of stops made by buses, limits on speed for safety, traffic congestion on the street and at intersections, turning and parking movements. Reducing the number of stops made by regular local lines is not a useful means for improving transit speed, since the reduction involves loss of convenience. The primary approach to increasing travel speeds must be to eliminate the conflict between transit and surface traffic as much as possible.

Transit Street Priorities: Recommended Improvements. The following factors have been considered in identifying priorities among transit streets for early action:

- safety for passengers and transit vehicles;
- the extent of transit use of the street;
- degree of interference with transit by traffic and limitations due to fixed transit rights-of-way;
- lack of need of the street for major traffic movements;
- need for improved speeds to attract higher patronage or to increase capacity of the line.

The least extensive measures considered necessary are proposed to improve transit operations on streets which are presently congested or where transit moves slowly. There are three situations where high priority action is required: streetcar and cable car streets; concentrated transit streets; and slow cross-town routes. Action on the streetcar and cable car streets is important for safety reasons and because of the inability of transit to maneuver. In the case of the streetcars, it is essential for efficient use of the new subway. The concentrated transit streets carry many transit vehicles, often causing a diminution in operating

speeds, especially on trolley bus lines. Regular scheduling and movement is necessary to avoid tie-ups and difficulty in passenger boarding at shared stops. The limited number of major cross-town transit routes accentuates the importance of providing service which is as frequent as possible, both for cross-town travel and for transfers. Most of these streets are congested shopping streets, such as Polk, Fillmore, Divisadero and Twenty-fourth Street. Operating speeds should be increased so that headways can be reduced.

Land Uses on Transit Streets. To the extent possible the City should encourage more intensive, transit-oriented uses on transit streets, with low-density and automobile-oriented uses kept on major and secondary thoroughfares. The Department of City Planning should undertake a proposal for necessary revisions in the Planning Code to ensure that automobile-oriented uses, such as parking garages, drive-in uses, car washing, new and used car lots and similar uses, which generate substantial vehicular traffic on a street, do not have access for vehicles to a transit street. Access to these uses should be provided from major thoroughfares. Zoning on transit streets should encourage pedestrian-oriented commercial uses and residences.

New Transit Vehicles

The Muni is presently preparing to undertake a major equipment overhaul in order to upgrade its rolling stock and repair facilities, tracks and wires. Expansion and maintenance of the rolling stock will require continual additions to the inventory of vehicles over the years; the planned purchase of new equipment to replace virtually the entire existing inventory is the first major step. The City should begin planning now for needs which will arise in the future from necessary expansion of the number and types of vehicles for transit use in providing normal service and in making transit "fun to ride".

The New Subway-Streetcars

The Muni is ordering 78 new streetcars which will run on the surface and in the new Market Street subway. These streetcars will be specially designed for San Francisco, adaptable to both subway and surface conditions and seating more passengers than the present streetcars. Muni will also have an option to purchase an additional number of these streetcars later. The first 78 cars will permit an increase in capacity on the streetcar lines of about one-third. To the extent more cars are ordered, the greater speeds made possible in the subway will permit a higher increase in seating and standing capacity. If the streetcars are linked in trains in the subway, the capacity of the streetcar lines could potentially increase by more than two times existing

HIGH PRIORITY TRANSIT STREET IMPROVEMENTS

Transit Line/Street

Recommended Action

Powell Street, Ellis to Jackson
(Powell-Mason, Powell-Hyde
cable cars)

Widen, where necessary, north of Geary to allow one moving lane to right of tracks; install paving bars to keep cars off tracks; extend Powell Street mall to O'Farrell Street.

Judah Street, Irving Street,
Carl Street
("N" Judah route)

Widen to uniform width to allow one moving traffic lane to right of tracks; install paving bars between traffic lanes and tracks; extend median strip across minor intersections, leaving open 46th, 41st, Sunset Boulevard, 30th, 25th, 19th, 11th, 9th, 7th, Arguello, Stanyan and Cole; grade separate at 19th Avenue and Sunset Boulevard intersections; install signals at all open intersections and pre-emption devices for streetcars; ban all but minimum of left turns.

Taraval Street, west of 15th Avenue
("L" Taraval route)

Install paving bars between tracks and traffic lanes; extend median strip across minor intersections, leaving open 46th, 41st, Sunset Boulevard, 32nd, 30th, 24th, 19th and 15th; install signal lights at open intersections and pre-emption for streetcars; ban all but minimum of left turns; grade separate at 19th Avenue and Sunset Boulevard intersections.

Nineteenth Avenue,
St. Francis Circle to Randolph
("M" Ocean View line)

Install signal pre-emption devices at all intersections from St. Francis Circle to Holloway; create grade separations at Holloway and private right-of-way intersections with 19th Avenue; ban or grade separate left turns for northbound traffic to Stonestown; landscape 19th Avenue right-of-way.

Church Street
("J" Church route)

Install signal pre-emption devices at 18th, 17th (with new signal light), 16th, 15th, and Market and 14th; install paving bars between tracks and traffic lanes between Duboce and 18th; ban left turns into and out of Church Street in same locations except for Fillmore bus; control intersections between private right-of-way and 20th, Liberty and 21st with stop signs or activated signals for cross-traffic.

St. Francis Circle and
West Portal Avenue
("M" Ocean and "K" Ingleside lines)

Ban left turns from West Portal Avenue to Junipero Serra for traffic; install signal pre-emption devices for St. Francis Circle streetcar crossings; grade separate through traffic to Sloat from Portola and Junipero Serra; consider future need for paving bars to right of tracks on West Portal Avenue.

Mission Street, 11th Street
to Embarcadero

Alternative 1: create exclusive center transit right-of-way of 22 feet with 6-foot islands at intersections for boarding; no parking at curb along islands; left-turn ban; narrow sidewalks to 10 feet at intersections, 12 feet mid-block.
Alternative 2: reserve street exclusively for transit between 7 and 9 a.m. and 4 to 6 p.m.; all day bus lane in each direction; left-turn ban.
Alternative 3: reserved bus lanes between 7 and 9 a.m. and 4 to 6 p.m.; traffic signal pre-emption at all intersections; left-turn ban; extended sidewalk passenger platforms at stops adequate for two buses.

Haight Street
(71, 72, 66, 6, 7, 33, 43 lines)

Reconstruct street to flatten and include new extended sidewalk passenger platforms; return buses to two-way operation on Haight from Waller; install signal pre-emption devices at major intersections: Stanyan, Cole, Clayton, Masonic, Divisadero, Fillmore, Gough; build median strip across minor intersections; new loading zones in shopping area.

Union Street, Gough to Steiner
(41, 45 lines)

Extended sidewalk passenger platforms; peak hour parking restrictions and limit on on-street spaces during day with new loading zones reserved for deliveries; strong enforcement of double parking ban; ban all but minimum of left turns; install signal pre-emption devices at controlled intersections.

Polk Street
(19 line)

Alternative 1: close to all traffic except transit and delivery vehicles between Sutter and Washington; convert vehicle to high-capacity double decker bus; use alleys for parking and deliveries and provide new off-street parking on east-west streets.
Alternative 2: extended sidewalk passenger platforms; all day left-turn ban; double decker bus; truck loading zones; exclusive transit use on Saturdays.

Fillmore Street
(22 line)

Extended sidewalk passenger platforms; eliminate on-street parking when new off-street facilities are provided in redevelopment and provide exclusive bus lane from Golden Gate to Pine, with deliveries permitted during restricted hours; ban all but minimum of left turns; install signal pre-emption devices between Pine and Golden Gate.

Doyle Drive, Lombard Street, Bay,
North Point, Sansome, Battery
(Golden Gate Bridge buses to Marin)

Create exclusive center one-lane right-of-way (reversible for peak direction) on Doyle Drive and Lombard to Van Ness for Marin buses and Muni optional use for Marina express service; stripe exclusive peak hour bus lanes on Bay, North Point, Sansome and Battery.

Castro Street, Market to 19th
(37, 24, 8, 35 lines)

Extended sidewalk passenger platform on west side for two buses at subway station entrance and peak hour boarding zone south of platform for two additional buses.

MEDIUM PRIORITY TRANSIT STREET IMPROVEMENTS

Transit Line/Street	Recommended Action
Chestnut Street, Scott to Van Ness (30 line)	Signal pre-emption devices at major intersections; extended sidewalk passenger platforms adequate for two buses.
Sutter Street, west of Gough (1, 2, 3 lines)	Install signal pre-emption and new lights for all intersections; extended sidewalk passenger platforms.
Geary Boulevard, west of Masonic (38 line)	Signal pre-emption at major intersections; median strip across minor intersections; leave open Stanyan, Arguello, 6th, 10th, 18th, Park Presidio, 25th, 32nd through 48th; extended sidewalk passenger platforms in shopping areas.
California Street, Van Ness to Market (61 California Street cable car)	Raised loading islands for cable car stops; signal pre-emption devices for all controlled intersections.
California Street, Presidio to 32nd (1 line)	Signal pre-emption and necessary new lights at major intersections; median strip across minor intersections.
Twenty-fourth Street, Castro to Potrero (35, 11 lines)	Extended sidewalk passenger platforms.
Columbus Avenue (41, 15, 30 lines)	Passenger platforms; signal pre-emption north of Broadway; consider Columbus underpass at Broadway with transit mall and station above at end of North Grant.

capacity, offering greater comfort for passengers and opportunities for using vehicles now on bus routes for other services. For this to occur, however, the City will require more streetcars. It is recommended that immediate consideration be given to increasing the initial order so that higher capacities will be available when the subway is opened in 1974 or 1975.

Task Force on Transit Vehicles

San Francisco has unique problems in finding suitable transit vehicles for movement within the city from both environmental and engineering viewpoints. The rugged topography of the city long ago necessitated the invention of a unique vehicle, the cable car, in order to provide transit to otherwise unserviceable areas. The City has also maintained a large fleet of electric trolley buses in order to traverse hills which gas and diesel buses could not handle fifteen years ago. The electric buses have proved to have more than mere technical advantages since they are quieter than gasoline or diesel buses and do not pollute the air. The diesel motor coaches the City has acquired in the last few years are able to traverse many hills formerly inaccessible to all but the trolley buses more quickly. They have the disadvantages, however, of being very noisy, particularly on the hills, and of being out of scale with many neighborhoods. The Muni is therefore planning to acquire new electric

trolleys to replace the existing, worn-out buses.

The City has been forced in the past to choose among a very few offerings of vehicles available from manufacturers due to the limited number of types built for the regular market. As a result, in order to obtain the vehicles needed for the subway-streetcar operation, a special type of vehicle is being commissioned just for the city's needs. The City must also commission the building of the new trolley buses. This same approach will be necessary in the future if the City is to obtain transit vehicles which are satisfactory in design, scale and performance, particularly for the special recreational lines proposed.

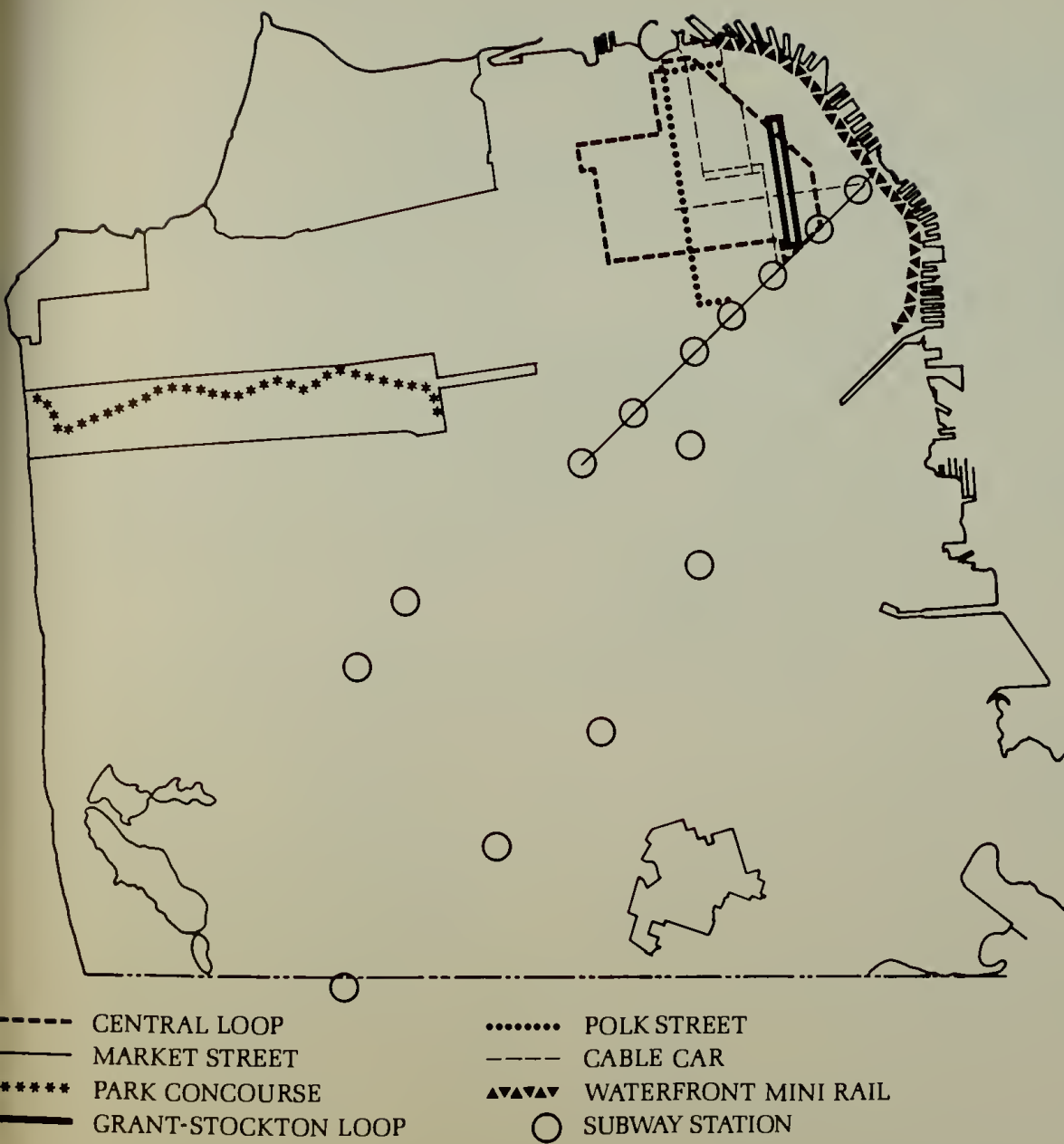
More than one set of performance criteria for a vehicle may be required. The performance criteria should address the problems of negotiating the city's most rugged topography, the problem of capacity, of providing shuttle and express service, of being in scale with the city's neighborhoods, the problems of noise and exhaust pollution, of using narrow streets and making sharp turns, and the opportunities offered by San Francisco's unique weather and scenic landscape. The City should immediately establish a task force to determine the appropriate criteria for future surface transit vehicles so that it may "shop" intelligently and economically. Then, once more, San Francisco can step into

the lead in transit planning by clarifying its needs and finding a satisfactory and economical means of satisfying them.

Recreational Transit

One of the most important ingredients in boosting transit use in the city by visitors and residents alike is making it fun to ride. The cable cars are symbols of what transit can mean to people. Creating new transit routes, with special "fun" vehicles operating on them, is particularly important in enhancing transit in the central area, since it is within this area that half of the city's population lives and 80 percent of the city's jobs are located. These new lines should complement regular Muni service by adapting to the special needs of people trying to move around easily, pleasantly and quickly among the many attractions in this area. Much study may be required to arrive at definite conclusions about the proper type of recreational vehicles or movement systems used to serve this area. For instance, a waterfront route might have a different kind of vehicle than a route along Market Street.

The study proposed by a task force on transit vehicles should address the special problem of enhancing transit service in the central area. The following new lines with possible appropriate vehicles are suggested as a basis for preliminary discussion:



Central Loop: a two-way loop route is proposed to connect the retail district, North Beach, Union Street and Polk Street shopping areas, Nihonmachi and Fillmore Center. The route would pass by the Powell Street and Civic Center subway stations. A high capacity double-decker bus, with an unenclosed lower platform, would be an appropriate vehicle, offering pleasant and comfortable service for both short and long trips.

Market Street: convert the No. 8 bus to a double decker and operate from the Ferry Building to Castro Street once the streetcars are in subway, with

shorter headways from Ferry Plaza to Van Ness Avenue.

Park Concourse: an elephant train running throughout Golden Gate Park from an eastern terminus along John F. Kennedy Drive to the beach and back.

Grant-Stockton: a small bus or elephant train operating in a loop on Grant and Stockton from Market to Washington Square, connecting the retail district, Chinatown and North Beach.

Waterfront: a new mini-rail or streetcar extension to run along the northern waterfront from Fisherman's

Wharf to China Basin channel, built in increments as the use of the waterfront changes, as suggested in the Northern Waterfront Plan.

Muni's Transit Improvement Program

The Municipal Railway is preparing a major improvement program aimed at rehabilitating and replacing worn-out rails, wires, storage and maintenance facilities, at constructing a streetcar and cable extension and building or acquiring new equipment. A summary of the projects included in that program is presented here.

Subway-surface rail car system. The following projects are intended to provide for the changeover from the present streetcar system to the new combined subway-surface system. The total estimated cost is about \$10 million. The new streetcars are already approved, funded and being ordered.

- Re-railing of Twin Peaks tunnel and four streetcar lines
- New overhead wire system
- Forest Hill Station rehabilitation
- Communication Control Center rehabilitation
- Construction of new streetcar storage and service facility
- Safety control, fare collection and passenger guidance equipment, shop equipment and vehicle monitoring system
- Construction of Cross-Sunset streetcar line

Motor Coach Facilities. Replacement of existing motor coach storage yards and addition of new storage space, with new service facilities, are required to handle the new fleet of motor coaches. Many new passenger bus shelters will also be provided. Estimated cost is over \$7 million.

- New combined central shop
- Replacement of Ocean Avenue Coach Yard
- Replacement of Kirkland Coach Yard
- Expansion at Potrero Yard
- New passenger shelters.

Cable Car System. Rehabilitation and expansion of the cable car system will ensure the continuation of this unique San Francisco attraction. Estimated cost is about \$2.5 million.

- Build three new cable cars and re-build seven
- Extend Powell-Mason line to

Fisherman's Wharf

- Reconstruct and re-rail existing lines
- Install electronic alarm system and improve cable car lights and braking system

A substantial part of the total \$44 million in improvements is expected to be funded with Federal assistance; this program should be begun as soon as possible.

Muni Route Network

At present 80 percent of the Muni's routes serve chiefly to provide no-transfer connections between downtown and the rest of the city. The development of the rapid transit system proposed in the Rapid Transit Plan will mean that a far superior form of downtown-oriented trunkline will be available to serve residents in most corridors in the city. These trunklines will be more desirable to most people for travel to downtown and will therefore eliminate the need for the large number of vehicles used at present on surface trunkline routes. They will not, however, provide for much cross-town travel. As a result, surface routes should be reoriented toward improving interdistrict transit service as well as feeding the rapid transit trunklines.

Proposed Muni Route Network Study.

An exhaustive study and evaluation of Muni's entire route pattern has never been done. Many lines follow routes as a result of historical patterns of transit service or prior constraints of topography which may no longer be valid. On the other hand, topography and patterns of development remain important determinants of a good route network. A study should be undertaken as soon as possible to evaluate the entire network of lines in San Francisco, with and without regard to future rapid transit development. The purpose of such a study should be to determine necessary changes in the network of surface transit lines which will improve service and attract more passengers. The following subjects should be covered:

- Potential patronage in areas not now served and for types of trips not now made by transit and means of attracting that patronage.
- Means of enhancing off-peak transit patronage.
- Possible additional surface rail lines on semi-exclusive rights-of-way.
- New lines required to improve cross-town service.
- Number of transfers presently required to make various types of

SUMMARY OF SURFACE IMPROVEMENTS

Refer to Text for
Specific Recommendations

RESIDENTIAL STREET PROTECTION PROJECTS

- N-1 South Bayshore
- N-2 Haight-Ashbury
- N-3 Inner Mission
- N-4 Sunset and Parkside
- N-5 Western Addition
- N-6 Outer Richmond

SELECTED THOROUGHFARE IMPROVEMENTS

HIGH PRIORITY PROJECTS

- S-1 Maritime Parkway construction
- S-2 Bay Street, North Point Street one-way couple
- S-3 Beach Street, Jefferson Street reductions
- S-4 O'Shaughnessy Boulevard curve straightening
- S-5 Portola Drive underpass at Woodside
- S-6 Great Highway narrowing and realignment
- S-7 Harney Way widening
- S-8 St. Francis Circle underpass
- S-9 Hunters Point Freeway construction
- S-10 Quint Street roadway improvement
- S-11 Oakdale Avenue widening and narrowing
- S-12 Cross-over Drive undergrounding
- S-13 John F. Kennedy Drive narrowing
- S-14 Doyle Drive reconstruction
- S-15 Sunset Boulevard underpasses at Judah and Taraval
- S-16 Nineteenth Avenue underpasses at Judah and Taraval
- S-17 Embarcadero Freeway removal

MEDIUM PRIORITY PROJECTS

- S-18 Laguna Honda Boulevard realignment
- S-19 Fort Mason tunnel
- S-20 Parnassus Avenue depression
- S-21 Sunset Boulevard extension under Golden Gate Park
- S-22 Kezar Drive undergrounding
- S-23 Maritime Parkway completion to Howard
- S-24 South Bayshore Shoreline Drive construction
- S-25 El Camino del Mar slide area reconstruction and new Bayfront Drive
- S-26 Van Ness Avenue depression
- S-27 Fell Street-Oak Street undergrounding
- S-28 Nineteenth Avenue underpass at Sloat

LOW PRIORITY PROJECTS

- S-29 Portola Drive underpass at Clipper
- S-30 State Route 480 extension underground
- S-31 Junipero Serra Boulevard underpass at Nineteenth Avenue
- S-32 Fillmore Street tunnel
- S-33 Holloway underpass at Nineteenth Avenue
- S-34 Turk Street underpass at Masonic

TRANSIT STREET IMPROVEMENTS

HIGH PRIORITY PROJECTS

- T-1 Powell Street widening and paving bars
- T-2 Judah, Irving and Carl Street signal pre-emption, paving bars and intersection reductions
- T-3 Taraval Street paving bars, signals and intersection reductions
- T-4 Nineteenth Avenue signal pre-emption at intersections
- T-5 Church Street signals and paving bars
- T-6 St. Francis Circle-West Portal Avenue signal pre-emption
- T-7 Mission Street alternative transit improvements
- T-8 Haight Street passenger platforms, pre-emption devices
- T-9 Union Street passenger platforms, left-turn controls
- T-10 Polk Street alternative transit improvements
- T-11 Fillmore Street passenger platforms, signal pre-emption and left-turn controls
- T-12 Doyle Drive and Lombard exclusive lane for Marin buses
- T-13 Castro Street passenger platforms

MEDIUM PRIORITY PROJECTS

- T-14 Chestnut Street passenger platforms and signal pre-emption
- T-15 Sutter Street signal pre-emption and platforms
- T-16 Geary Boulevard signal pre-emption and intersection reductions
- T-17 California Street raised islands for cable cars and signal pre-emption
- T-18 California Street signal pre-emption
- T-19 Twenty-fourth Street passenger platforms
- T-20 Columbus Avenue passenger platforms, signal pre-emption and transit center at Broadway



SUMMARY OF SURFACE TRANSPORTION IMPROVEMENTS

HIGH PRIORITY PROTECTED RESIDENTIAL AREA

HIGH PRIORITY TRANSIT IMPROVEMENT

MEDIUM PRIORITY TRANSIT IMPROVEMENT

—●— HIGH PRIORITY THOROUGHFARE IMPROVEMENT

- - - ○ - - - MEDIUM PRIORITY THOROUGHFARE IMPROVEMENT

..... △ LOW PRIORITY THOROUGHFARE IMPROVEMENT

trips and means to reduce the number of transfers.

- Means of simplifying and improving transfers among surface lines through grade-separated terminals or on-grade turn-arounds at transit centers.
- Route changes or new kinds of routes, such as limited stop or express service, which would improve the quality of inter-district service.
- New feeder or shuttle routes required as rapid transit is developed.
- Requirements for improved service for schools and hospitals.

Preliminary Recommendations for Changes in and Additions to the Muni Route Network. The opening of BART and of the new Muni subway necessitates changes in some of the Muni's regular routes to take advantage of the rapid transit service offered and also offers the opportunity to improve service in other areas as vehicles are freed from service corridors to be served by the new lines. A study is now being planned by BART, Muni and the Metropolitan Transit Commission to determine appropriate connections between BART and Muni service.

Some changes in Muni's route network should be and can be made even before the elaborate studies required can be completed. The Department of City Planning has reviewed the study of routes made by Simpson and Curtin in 1966, discussed them with the Muni and looked for possible changes and additions which could enhance service for many present or potential transit patrons. Some of the changes will provide new service to subway stations, allowing for faster service along the subway routes; others provide service along streets or in directions where none exists now. The recommendations made are preliminary in nature, intended to generate a discussion of possibilities by citizens and City officials.

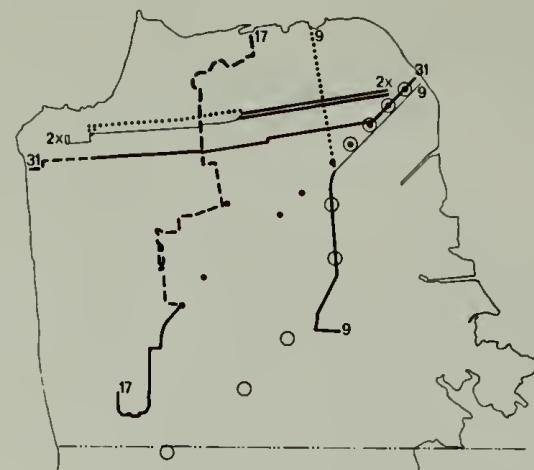
2X-Clement Express: change route to California Street from 32nd Avenue to Presidio for faster service; keep local on Clement.

9-Richland: when BART starts, change route at Mission and Van Ness to run north on Van Ness; will be major north-south cross-town and transfer line (might change #14 instead if Outer Mission residents have higher BART usage than Bernal Heights residents).

17-Parkmerced: extend northerly to U.C. Medical Center and Letterman's Hospital to provide feeder service to Muni portals, interconnect two major hospitals and San Francisco State

College, and provide new cross-town service from the Sunset to the Marina.

31-Balboa: extend west on present route of the 38 Geary.



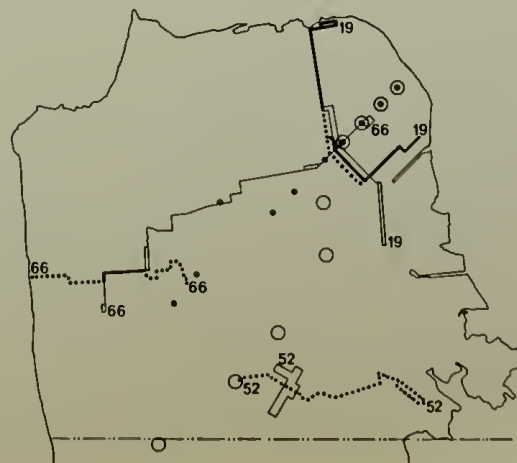
MAP LEGEND

- Existing route
- Route to be discontinued
- Route to be added
- - - Extension of existing route
- Muni subway station
- BART subway station

19-Polk: eliminate Potrero Hill leg and reroute regular run to be on Polk for entire southbound direction and for northbound direction north of McAllister. See 80-Leavenworth.

52-Excelsior: expand from a feeder to a cross-town line with new terminus at Balboa Park BART station and running through McLaren Park to Candlestick Park and the Bret Harte neighborhood.

66-Quintara: when the Muni subway is operational, reroute to provide east-west cross-town and feeder service to Forest Hill Station.

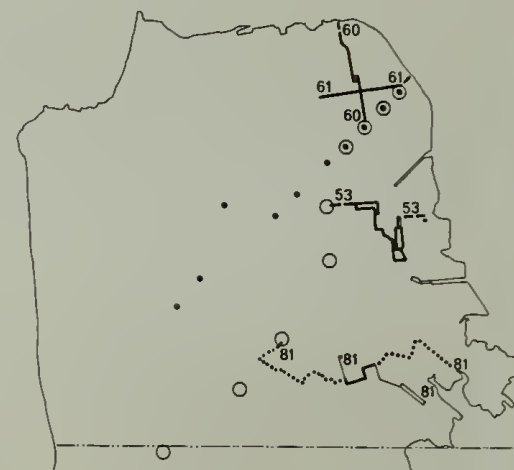


53-Southern Heights: extend west to 16th Street BART station and modify eastern route to extend to 20th and Third Street.

60-Powell-Mason cable car: extend north to Fisherman's Wharf.

61-California cable car: extend to Ferry Plaza.

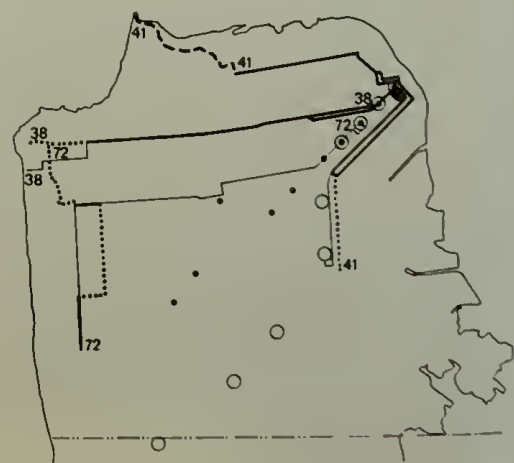
81-Bacon: extend west to Glen Park BART station with slight change in route and shift eastern route north through industrial area to the Bayview neighborhood. See 52-Excelsior.



38-Geary: change route to continue on Geary and Point Lobos west of 33rd Avenue; the 31 Balboa extension will replace route of the #38 west of 33rd Avenue.

41-Union-Howard: extend northern portion to Golden Gate Bridge at least on weekends; change southern route to Folsom in the Mission to provide better distribution of bus service if wires can be provided on Folsom.

72-Haight-Sunset: when Cross-Sunset streetcar line is running, change to run between Parkside and the Richmond.



24-Divisadero: extend east on 24th Street, through Potrero Hill and on Evans to Hunters Point Naval Yard; this change will create a major circumferential no-transfer line from the Western Addition to the Bayshore.

33-Ashbury: modify route to pass 16th Street BART station and to run on Folsom and Harrison to bring opposite directions of travel closer together.

39-Coit: expand loop north to waterfront.



43-Roosevelt: extend north through the Presidio to Marina Boulevard on Scott to increase cross-town service and extend east to 16th Street BART station.

51-Silver: extend west to Glen Park BART station and then on Monterrey on the present route of the #10 past Forest Hill station to the Richmond to increase cross-town and feeder service; northern terminus to provide for transfers to the 55 Sacramento and 21 Hayes lines.

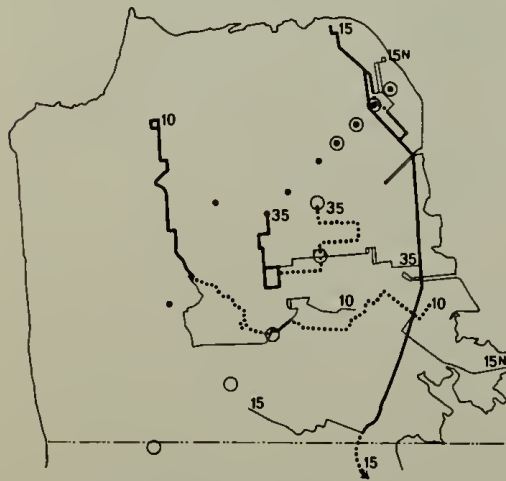
10-Monterrey: change route south of Forest Hill station to run on



O'Shaughnessy and Bosworth to the Glen Park BART station and then through Bernal Heights on Crescent to the Produce Market and Butchertown; this change will speed up cross-town service for this major outer circumferential route and provide better connections to employment.

15-Kearny and 15N-Naval Yard: change southern leg of Kearny to extend to industrial areas along Old Bayshore in San Mateo County to provide better access to employment and eliminate Naval Yard branch when route of 42 is changed; modify route in downtown to run south on Montgomery to New Montgomery and then Second Street.

35-Eureka: modify route to provide feeder service to BART and cross-town service in Mission when #24 is rerouted.



23-Crescent Heights and 13-Ellsworth: consolidate into one two-way loop to improve feeder service to BART and Mission lines and shorten headways.

25-Bryant: extend Geneva terminus to Geneva and Mission, shift



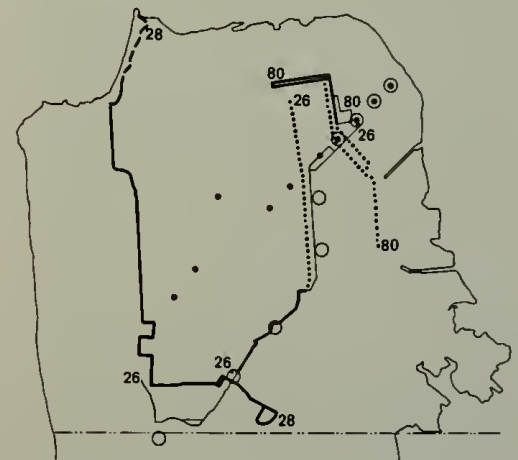
Mission portion from Bryant to Potrero and extend north of Market on Mason and Taylor to Pine for better intra-downtown service and faster service to downtown from Outer Mission.

42-3rd-Evans: eliminate Davis Street loop and shift southern leg from Evans to Palou and into the Naval Yard; reroute in downtown to run east of the #15.

26-Valencia: when BART starts, reroute from southern terminus at City College on Circular past the Glen Park BART Station and then on Guerrero and Laguna to Pine Street to increase cross-town service; BART will replace existing service on this line.

28-Nineteenth Avenue: extend service on weekends to Golden Gate Bridge.

80-Leavenworth: change route north of Market to run on Hyde and Leavenworth only and extend south to take over present Potrero Hill leg of Polk 19; both legs of this line would provide a similar type of service.



Transit Fares, Patronage and Financing

San Francisco has long supported its transit system through taxes, unlike many other cities which have overseen the decline of transit service and transit use. The policies of the Mass Transit Plan call for the maintenance of a low transit fare. Transportation should not be considered a self-supporting operation; subsidies are often essential to achieve goals desired by the public, whether those be directed toward environmental preservation and improvement, reduction in unemployment and improved housing choices, higher mobility or greater educational opportunities.

Fares and Ridership. Transit patronage varies with its cost. When

fares are raised, some people make fewer trips or make them by automobile. Others pay the added fare, some because they have no other alternative. Both of these consequences must be avoided: incentives should not be created for increased travel by automobile in the city and higher economic burdens should not be placed on those who must use transit for their travel, especially since many of these persons have low incomes.

Higher transit fares discourage travel by transit during the non-peak hours even more than during the rush hours. People with lower incomes can and will reduce the amount they travel for non-work purposes and those with automobiles find the comparative advantage of automobile travel greater during the off-peak hours when congestion on the streets is less and parking costs may be lower. Since these are the times when transit capacity is underused, every encouragement should be given to making use of the equipment which is available during the off-peak hours. One way of doing this is to lower fares; another is to increase special transit services.

Fare differentiation is appropriate, not only for off-peak use (such as the Sunday and holiday pass) but also within the "central area". A lower fare for travel within this area is one way of encouraging greater transit use in order to reduce automobile travel. In combination with new transit services, San Francisco can look forward to higher transit patronage within that part of the city which attracts the most people.

Financing. If fares on transit are to be kept down, new sources of financing will have to be found. The property taxpayer is already overburdened with most costs of municipal services. The dependence of Muni on the general fund for its operations has required delay of critical capital improvements and a regular equipment replacement program so that the massive re-equipment program now underway is necessary. Three broad categories of new financial assistance for transit must be sought: (1) Federal aid, (2) State assistance, and (3) alternative local tax sources. It is essential, not only that new financing be sought, but also that Muni be guaranteed adequate funds to maintain and continually upgrade its fleet and service.

Recommendations.

- The 25¢ base fare should be maintained for the foreseeable future; express fares should be reduced to 25¢.
- Lower regular Muni fares to 15¢ between 9:30 a.m. and 4 p.m. and from 6:30 p.m. to 6:30 a.m. and on weekends and holidays to attract more off-peak riders.
- Institute a zone fare of 15¢ for all

regular transit travel within a "Central Area Transit Zone", with free transfers to other central area lines (all inbound within the area and those outbound terminating within the area).

- Keep 10¢ fare for existing and proposed shuttle buses and allow free transfer to shuttles from regular lines.
- Urge a Constitutional Amendment to allow local choice in the use of all shared gas tax funds for new improvements to the transportation system and for an increased proportion going to cities and counties.
- Amend the Charter to permit annual appropriation for transit capital improvements.
- Earmark parking tax receipts for transit improvements for next five years.
- Urge an increase in bridge tolls during the rush hours to discourage automobile use by commuters once BART and the Marin bus-ferry system are operating.

DOWNTOWN TRANSPORTATION IMPROVEMENTS

Within the next few years the organization of transportation in downtown will undergo some substantial changes. BART and the new Muni Rapid will be operating under Market Street; the Golden Gate Bridge, Highway and Transportation District will inaugurate the optimum bus system and expanded ferry service for Marin commuters, the Southern Freeway will be completed to South of Market and downtown will have grown bigger than ever before. The increasing concentration of employees, shoppers, tourists, businessmen and even residents in downtown San Francisco will require changes in the nature of downtown transportation. In order to maintain the status of downtown as the financial, administrative and cultural center of the Bay Area, the policies of the Plan for Transportation suggest increased emphasis on a pedestrian-oriented downtown circulation system and greater reliance on transit for the movement of people into, out of and within the downtown area. Due to this emphasis, there is some overlap between the proposals of the Mass Transit Improvement Program and transit proposals for downtown. These overlaps recognize the interdependence of city-wide and downtown transportation planning.

Planning for the movement of people and goods within downtown is sufficiently complex that a complete, detailed long-range plan for pedestrian, automobile, transit and delivery vehicle circulation as well as storage and loading requirements is considered to be impractical. What is required is a

set of guidelines, contained in the policies of the Downtown Transportation Plan, and incremental proposals adhering to those guidelines, which time and developments indicate to be necessary, feasible and reasonable. It is anticipated that constant adjustment of the downtown transportation system to new needs occasioned by private and public developments will be required. As a result, specific recommendations made in this program section have a horizon for implementation which is much shorter than in other elements of the Plan. The intent is to focus at present on actions which should be taken over the next five years related to known and committed changes in the city and regional transit networks and ongoing development of new office, retail and other space in downtown.

Key Principles of the Downtown Transportation Plan

The objectives and policies of the Downtown Transportation Plan as well as those of the Thoroughfares and Mass Transit Plans imply a basic set of principles for future downtown transportation facilities, interpreted as follows:

- Increasingly greater reliance should be placed on transit or "people mover" systems for intradowntown movements as the area grows.
- Parking should be increasingly restricted, with first priority to limiting the amount of future short-term parking facilities within the downtown core and avoiding expansion of all-day facilities in the C-3 zoning district.
- A minimally acceptable number of new parking facilities, primarily geared to serve short-term parking needs, should be located in the parking belts indicated on the Plan and accessible from streets primarily intended for automobile traffic rather than for transit.
- The street system should increasingly function for the movement of transit vehicles to, from and within the downtown core and to provide access for delivery and service vehicles on a restricted basis; through traffic should be routed around downtown and traffic into downtown kept down.
- Facilities for pedestrian circulation, including part- and full-time malls, should be expanded, with first priority in the retail and entertainment districts.
- Terminal facilities for bus and rail lines, intercity and commuter, should be concentrated where possible near major transit transfer points.

Street System and Circulation

The Chamber of Commerce has recently completed a study of the

downtown circulation system based on the elaborate Downtown Parking and Traffic Survey conducted by the Department of Public Works. With the assistance of City agencies, the Downtown Planning Committee tested a series of changes in the street pattern in the financial district and has made recommendations for changes in the entire downtown circulation system, including the use of tow-away and loading zones and exclusive bus lanes. These recommendations have been put into effect and the initial result appears to be reduced congestion and increased traffic speeds in downtown. Transit has also, it appears, benefited from the reduced congestion in achieving higher speeds. However, it is not clear whether the new plan will substantially aid in carrying out the policies of the Downtown Transportation Plan over the next five to ten years nor is it clear that transit service has been enhanced and patronage increased, a major objective of the Plan. One of the important questions remaining is whether overall door-to-door travel time and inconvenience for off-peak as well as peak hour transit patrons has been reduced; although transit vehicle speed appears to have increased, the effect of the use of new one-way streets in downtown for many transit lines may have increased the distance travelers must walk from transit to their destinations. Another question remaining is whether a completely one-way traffic pattern in downtown, especially north of Market Street, is conducive to a pleasant and desirable street environment from the point of view of pedestrians.

It may eventually occur that the new traffic pattern will invite such additional traffic into downtown that former levels of congestion will resume. This will almost certainly occur if the number of parking spaces available are increased substantially. It is for that reason that strict limits on overall parking capacity are recommended as a long-term policy and that emphasis is placed on accommodating future increases in travel to downtown by transit.

The Department of Public Works, in the second part of its Downtown Parking and Traffic Survey, has analyzed several alternative circulation patterns for the downtown area. All of the plans analyzed are oriented to improving traffic circulation, with two of the four placing greater priority on improved transit patterns and two on automobile and truck circulation. A remarkable result of the testing of these alternative plans by computer traffic simulation is the little variance among them in terms of automobile travel time and average speed of vehicular movements; somewhat greater variance is indicated among them in terms of overloading of streets and required tow-away zones, although even for these aspects the differences are not great. These results suggest that the existing street system's organiza-

tion acts as a major constraint on possible improvements for auto traffic so that a greater commitment to transit would not seriously impair auto circulation. What has not been tested to date is the possibility of increasing the proportion of travelers to downtown who will use transit if greater priority is given to transit movements on streets. The opening of BART and the Muni subway should give some preliminary indications of the possible effects of improved service within a few years. If transit patronage increases substantially as a proportion of total travel, especially off-peak travel, there will have to be a reconsideration of the long-standing assumption that automobile travel to downtown must continue its inexorable increase. There is the question not merely of facts but also of values. It is clear that many more people would use transit with good service in preference to the continued difficulty of travel and parking by automobile. It is equally clear that many more would travel by automobile if given the opportunity. Choice is related to opportunities. For many reasons, including problems of air pollution, space needed for pedestrians, and efficiency in the use of valuable downtown real estate, it is not desirable that automobile travel to downtown increase. A combination of positive measures on the one hand to provide better transit service and negative ones to discourage automobiles entering downtown will be required to achieve the objectives and policies of the Plan.

The Department of City Planning has reviewed various plans also considered by the Department of Public Works in the DPATS study and feels that some aspects of these plans which are not now included in the present circulation system deserve future consideration if traffic levels increase. The changes recommended for consideration over time are summarized below:

- Reversal of Mason and Taylor on completion of Anna Lane Street and creation of a Fifth Street-Sixth Street one-way couple to connect with Mason and Taylor.
- Return of Jones Street to two-way operation for local circulation and a new, frequent transit line to provide north-south service.
- Reversal of Kearny and Montgomery to permit a better connection with Columbus with a southerly connection to Third Street and New Montgomery. Sansome and Battery to be reversed to correspond with Kearny and Montgomery.
- Return of Fourth Street and Stockton (between Market and the tunnel) to two-way operation to permit a direct transit connection for the Marina and Bayshore lines on one street. At present, those working or stopping south of Market must walk the 825 foot block from Third to

Fourth to make the return portion of their trip.

- Extension of the Powell Street mall for pedestrians and deliveries to Geary.
- Creation of a part-time mall restricted to shuttle transit, restricted deliveries and pedestrians on Grant Avenue from Market Street to Sutter Street.
- Extension of the Fulton Street mall to Larkin Street.
- Restriction of alleys to pedestrians and delivery vehicles.

Parking

The Downtown Parking report of the Downtown Parking and Traffic Survey contains an exhaustive study of downtown parking conditions as of several years ago. It is likely that the conditions described at that time are substantially the same today. The report recommends construction of over 10,000 additional off-street parking spaces in garages by 1975 on the basis of projection of needs. Some of these spaces have been constructed since the report was issued. As indicated in the Downtown Transportation Plan, future parking should be restricted in great measure to fringe belts around the downtown core and use of that parking should be primarily for short-term parking by shoppers, businessmen and others not working downtown. The DPATS study also recommends a parking fee structure which discourages long-term parking in favor of short-term, which accords with the Plan.

In accordance with the policies of the Downtown Transportation Plan it is recommended that a substantial additional reservoir of parking spaces, on the order of 10,000, not be created until BART and the Marin ferry-bus system are operational in order that excessive automobile use for travel to downtown not be encouraged. The projections of the DPATS study do not include consideration of the impact of the expanded bus and ferry service to Marin. In addition, recently revised projections of BART patronage suggest a vastly greater use of the system by off-peak hour travelers than had been expected previously, substantially reducing the probability of required parking spaces for shoppers and visitors. The Rapid Transit Plan also includes an extension of BART to the Peninsula and the airport, as well as a Richmond line. Both of these lines are of highest priority and are scheduled to be constructed within the next ten years. Their development is anticipated to reduce parking and traffic demand in downtown substantially. Improved north-south downtown transit service in the form of shuttles or "people movers" such as the moving sidewalk being considered for the Yerba

Buena project should improve the desirability of transit use for those coming to downtown. If additional parking facilities are restricted in amount and to the fringe belts included in the Plan with adequate shuttle service, future parking expansion can be curtailed.

New parking garages in the designated parking belts should not have vehicular access from Mission Street, Sacramento Street or Powell Street. Those streets are and must continue to be major transit streets. Vehicular access should be provided from Washington and Clay for the northern belt, from Howard and Folsom for the southern belt, and from Mason and Taylor for the western belt.

Terminals for Public Transit and Transfer Points

A reduction in the number of AC Transit vehicles using the Transbay Terminal is expected with the commencement of BART service. This terminal is well-located in relation to the BART system and the financial district. In the event that the site is redeveloped by the Division of Bay Toll Crossings, its use as a terminal should be continued. Consolidation of all intercity, long-distance bus lines at this terminal would be highly desirable due to the excellent transit connections and automobile access.

The Marin optimum bus system will not operate through terminals on the basis of present plans. However, loading areas will be required on Sansome and Battery in the financial district and on Market Street and Van Ness near the Civic Center. It would be desirable for these buses to make a stop at the Transbay Terminal in order that the terminal be recognized as the one, convenient point at which to find a bus to Marin, the East Bay, and the rest of the state.

The Southern Pacific Depot, while somewhat far from the downtown core, is expected to remain at its existing location. Extension of the commuter service toward Market Street is probably not feasible. Eventually a BART west bay line to San Jose should replace the Southern Pacific service. A convenient and frequent shuttle service between the Depot and Market Street is required in the interim; the present service should be expanded.

The most important single matter to be worked out is regional transit use for access to and from downtown San Francisco is to increase is an interline transfer agreement with appropriate sharing of revenues among Muni, BART, AC Transit, Southern Pacific, the Golden Gate Bridge District, and Greyhound. It is particularly essential that Muni have a transfer agreement with each of these other transit bodies in order to ensure that passengers can transfer to

local lines in the city.

Yerba Buena Center might well include, as presently planned by the Redevelopment Agency, a new airport bus terminal. Even with the development of the BART extension to San Francisco International Airport, some bus service will be required. The Yerba Buena project offers a good location for such a terminal and adjacent streets better access for buses than exists now north of Market Street on Taylor.

Pedestrian-Oriented Streets

A growing need for pedestrian facilities is anticipated in downtown. The Powell Street and Fulton Street malls, Embarcadero Plaza and the Market Street sidewalk widening project are first steps toward improved opportunities for walking around downtown, always a popular activity. The most pressing need for improved opportunities for pedestrian-oriented streets is in the retail and entertainment districts with their high concentrations of large stores, boutiques, theaters, restaurants and other attractions, many of which are open both day and night.

An incremental program of creating pedestrian streets is recommended. These streets would operate, either part or full time, exclusively for pedestrians and transit vehicles. During limited periods, for instance early morning, they would be available for delivery vehicles. The following streets offer the best opportunities in the right locations:

- Expansion of Powell Street mall from Ellis to Geary;
- Grant Avenue from Market to Sutter;
- Fulton mall to Larkin Street;
- New Montgomery Street;
- Alleys such as Maiden Lane, Stevenson, Minna.

Few opportunities will be available for expanding on the elevated pedestrian street system developed in Golden Gateway due to the presence of existing development. Therefore, more of the available downtown rights-of-way will have to be turned over to pedestrians and transit vehicles.

Transit

Several new transit services and some changes in existing lines are recommended to enhance intradowntown transit service related to the new subway stations and existing high-activity areas. Other lines may be required in the future. Those suggested here are for implementation within the next few years (see also overall route recommendations in Mass Transit Improvement Program):

- A shuttle service on Grant Avenue and Stockton, running as a loop from O'Farrell Street to Union or Vallejo to supplement the Stockton Street buses and improve short-distance service. Preferred type of vehicle is either elephant train-type, minibus or double-decker with open lower platform.

- A special shuttle on Market Street between Van Ness and Embarcadero, looping around the Embarcadero Plaza to serve the Ferry Building, supplementing the Market-Castro line and permitting some trunklines to turn back at Market. This shuttle might be free, move slow enough to allow boarding anywhere and be as open as possible, like the cable cars.

- New minibuses, jitneys or other shuttle buses running from parking garages in the parking belts to the downtown core area.

- Shift all trolley buses to Mission Street after completion of the subway, with new exclusive right-of-way or peak hour "transit only" use on Mission.

- Turn back several north of Market Street trunkline motor coaches at Market Street, except during peak hours, with shuttle service on Market providing free and frequent transfers to continue trips.

Deliveries and Service

The Department of Public Works and the Chamber of Commerce have recently instituted restrictions on deliveries to a period from 9 a.m. to 1 p.m. in order to free streets and sidewalks from goods movement during the part of the day when the number of people in downtown reaches its peak. This move is a major step toward eliminating the conflict between goods and people movement. An expansion of the restrictions should be considered into other areas of downtown; a reduction in the time period, so that the downtown is free of delivery vehicles by noon, would be desirable.

Business leaders and City departments should also explore the possibility suggested by the Department of Public Works of making use of sidewalk elevators for nighttime deliveries, with precautions taken to secure basements from theft in order to eliminate the need for a night-watchman or goods receiver.

The Department of City Planning should review the loading space requirements in the C-3 zoning districts to determine, with the assistance of other departments, whether existing provisions are adequate. An increase in loading facility requirements in new buildings to reduce the need for on-street zones appears necessary as downtown grows. Provision should also be made for short-term service vehicles off the street.

CITYWIDE PARKING IMPROVEMENTS

As indicated in the introduction to this report, the Citywide Parking Plan does not pretend to be comprehensive. Outside of downtown, little information has been collected on parking needs. It is clear that some neighborhood shopping areas will probably require some additional off-street parking in the future if they are to compete with large shopping centers. It is also clear that on-street parking demand by residents in densely populated sections of the city seriously exceeds the number of spaces available. As a result, parking on sidewalks and double-parking can be observed frequently in all of the neighborhoods in the central area. The FACE program has involved increases in on-street parking spaces in some of the neighborhoods in which it is ongoing. In nearly all neighborhoods faced with residential parking shortages, detailed planning with residents will be required to develop specific solutions to the problem.

Programs such as FACE, Model Cities, redevelopment and this Department's area planning program can provide necessary planning assistance. Some citywide policies should be established, however, and some action taken toward assessing the dimensions of San Francisco's parking problems.

As the policies of the Plan suggest, it is believed unwise to increase resident parking spaces without limit. Many people live in downtown residential areas without an automobile due to the high expense of parking and the convenience of transit. This attitude should be encouraged. The following actions should be initiated to lead to a set of guidelines for a future parking program in the city as a whole which can serve as the basis for area plans and commercial parking proposals:

- The Parking Authority, the Department of Public Works and the Department of City Planning should initiate a study of overall parking needs for neighborhood shopping areas and determine the feasibility of increasing off-street

spaces in multi-purpose developments.

- The Department of City Planning should initiate a review of current residential parking requirements in the City Planning Code to determine what criteria might be established to permit reduced parking requirements for new residential developments, especially near new subway stations.

- The Department of Public Works and the Department of City Planning should initiate an immediate study of possibilities for increasing on-street parking spaces in residential areas through the use of perpendicular and diagonal parking in place of parallel parking. The study should be coordinated with implementation of the "protected residential areas" policy described in the program for thoroughfares improvements.

- The Board of Supervisors should consider the feasibility of increased fees for second and third car registration.

SAN FRANCISCO DEPARTMENT OF CITY PLANNING

ALLAN B. JACOBS, Director of Planning

EDWARD I. MURPHY, Assistant Director

DEAN L. MACRIS, Assistant Director - Plans and Programs

R. SPENCER STEELE, Assistant Director - Implementation

LYNN E. PIO, Administrative Secretary

CONTRIBUTING STAFF

Walter Stoll, Head, Transportation Section

John Sanger

James White

William Proctor

This report was written by John Sanger,
with the assistance of Walter Stoll.

GRAPHICS

Frank E. Hendricks, Senior City Planning Draftsman

Donald Brown

Jean Cody

Ruth Durbin

Eda Kavin

Book design by Eda Kavin

